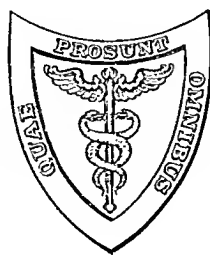


THE
AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

EDITED BY
I. MINIS HAYS, A.M., M.D.

NEW SERIES.

VOL. XCV.



PHILADELPHIA:
LEA BROTHERS & CO.
1888.

Entered according to the Act of Congress, in the year 1888, by
LEA BROTHERS & CO.,
In the Office of the Librarian of Congress. All rights reserved.

PHILADELPHIA:
DORNAN, PRINTER,
N. W. cor. Seventh and Arch Streets.

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
Dermatitis Exfoliativa Neonatorum, or Ritter's Disease. By GEORGE T. ELLIOT, M.D.	1
The Anti-bacterial Action of Iodoform. By J. AMORY JEFFRIES, M.D.	15
Rheumatic Laryngitis. By E. FLETCHER INGALS, A.M., M.D.	22
The Influence of Leukæmia upon Pregnancy and Labor. By JAMES C. CAMERON, M.D.	
Remarks on a Case of Tuberculosis Pulmonum; with Duodenal Uleer. By WILLIAM PEPPER, M.D., and J. P. CROZER GRIFFITH, M.D.	34
Tubercle of the Testis. By R. W. TAYLOR, M.D.	43

REVIEWS.

Nervous Diseases and their Diagnosis. By H. C. Wood, M.D., LL.D.	51
La Goutte, La Nature et son Traitement. Par Dr. W. Ebstein	53
The Practitioner's Handbook of Treatment. By J. Milner Fothergill, M.D.	55
Photographic Illustrations of the Anatomy and Pathology of the Human Ear. By B. Alexander Randall, A.M., M.D., and Henry Lee Morse, B.A., M.D.	57
Syphilis. By Jonathan Hutchinson, F.R.S., LL.D.	58
A Treatise on Diphtheria, Historically and Practically Considered; including Croup, Tracheotomy, and Intubation. By A. Sanné. Translated by Henry X. Gill, M.D.	60
Public Health. The Lomb Prize Essays	62
Index-catalogue of the Library of the Surgeon-General's Office, United States Army	64
Druitt's Surgeon's Vade-mecum. By Stanley Boyd, M.B., F.R.C.S. Eng.	65
Du Delire chez les Dégénérés. Par le Dr. M. Legraino	66
The Student's Guide to Diseases of the Eye. By Edward Nettleship, F.R.C.S.	67
A Treatise on Diseases of the Hair and Scalp. By George Thomas Jackson, M.D.	68
A Practical Treatise on Impotence, Sterility, and allied Disorders of the Male Sexual Organs. By Samuel W. Gross, A.M., M.D., LL.D.	69
Elements of Pharmacology. Schmiedeberg's. Translated by Thomas Dixon, M.D.	69
Guide to the Administration of Anæsthetics. By Henry Davis, M.R.C.S.	70

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
Gleditschine, or Stenocarpine	71	A Gargle in Stomatitis	73
Treatment of Syphilis	71	The Treatment of Diphtheria	73
Sparteine in Cardiac Diseases	72	A New Hypnotic	74
Elimination of Mercury.	72	Acetanilide as a Nervino	74
Action of Acetanilide (Antifebrino)	73	Antipyrin in Chorea	75
Insufflation in Whooping-cough	73		

MEDICINE.

	PAGE		PAGE
Diseases of Stomach	75	Hyperacid Vomiting, and the Condi-	
The Etiology of Gastric Ulcer	77	tion of the Urino	79
The Influence of Trauma in the Pro-		Cause of Evolution of Sulphuretted	
duction of Gastric Ulcer	77	Hydrogen in Urine	80
Pleuritis Pulsans.	78	Parenchymatous Injection of Ergotin	
Polymyositis Acuta Progressiva	78	in Malarial Enlargement of Spleen .	80

SURGERY.

Sublimate Paper for Wounds	81	Removal of Intracranial Tumor	85
Treatment of Wounds by Iodoform		The Diagnosis of Chronic Mammary	
Tampons	81	Abscess from Carcinoma	87
Subcutaneous Injection of Blood and		Laparotomy in Peritonitis	87
of Saline Solution	82	Inguinal Colectomy	88
Death during Ether Inhalation	83	Anæsthesia of the Urinary Tract	89
Gastrotomy for the Removal of Foreign		Fracture and Dislocation of the Astra-	
Bodies from the Œsophagus	85	galus	89

OTOLOGY.

Contused Wounds of Auricle	90	Rapid Loss of Hearing in a Child	91
Acute Suppuration of the Tympanum		Syphilis of the Labyrinth	91
in Chronic Bright's Disease	91	Aural Vertigo	92

LARYNGOLOGY.

Now Literature	92	Cure of Recurrent Nasopharyngeal	
Leucoplakia Buccalis	93	Tumor by Electrolysis	94
Stricture of the Œsophagus from Ulcer	93	Recurrent Hemorrhage of the Vocal	
Gastrotomy in Removal of Foreign		Band	94
Body from the Œsophagus	93	Leprosy of the Larynx	94
Detachment of Post-nasal Polypi	93	Carcinoma of the Larynx	95
Occlusion of the Posterior Nares	94	The Use of the Finger in dislodging	
Galvanism in Atrophic Rhinitis	94	an Impacted Body in the Larynx .	95

DERMATOLOGY.

Salt in Dermal Therapeutics	95	Cocaine in Skin Diseases	96
On the Advantages of a Compound		Treatment of Psoriasis with Iodide of	
Salicylated Plaster	96	Potassium	97
A New Treatment for Obstinate Ro-		Phlyctenosis Aggregata	97
curring Eczema	96	The Therapy of Leprosy	98

OBSTETRICS.

The Treatment of Uterine Atony by		A Case of Puerperal Hemiplegia	102
Iodoform Gauze Tampons	99	Extrauterine Pregnancy; Operation .	102
Separation of Turning and Extraction	99	Relaxation of the Pelvic Ligaments .	103
A Case of Primitive Face Presentation	100	Cæsarean Section (Singer)	103
Basiotripsy	100	Extrauterine Pregnancy	104
The Infection of Puerperal Wounds .	101	Tonic Uterine Contraction, without	
Puerperal Neuritis	102	Complete Retraction	104

GYNECOLOGY.

Treatment of Uterine Flexion	105	Functional Affections of the Uterus re-	
Methods of Cleansing the Peritoneum	105	sulting from the Morphine Habit .	107
Separation of Peritoneal Adhesions		The Diagnosis of Commencing Epithe-	
around the Displaced Uterus	106	lioma of the Cervix	107
Puncture in the Treatment of Perime-		The Relations between the Uterine	
tritis	107	Mucosa and Diseases of the Adnexa	108

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

JANUARY, 1888.

DERMATITIS EXFOLIATIVA NEONATORUM, OR RITTER'S
DISEASE.

By GEORGE T. ELLIOT, M.D.,

ATTENDANT DERMATOLOGIST, DEMILT DISPENSARY; ASSISTANT PHYSICIAN, NEW YORK SKIN AND
CANCER HOSPITAL; MEMBER NEW YORK DERMATOLOGICAL SOCIETY, ETC.

THE comparative rarity, or, perhaps, it would be better to say the want of recognition of the affection described by Ritter v. Rittershain under the name of dermatitis exfoliativa neonatorum, and the additional fact that no mention of it is found either in dermatological literature, except in a foot-note in the third edition of Duhring's book, or in the many valuable treatises devoted to the diseases of children, which have appeared in America, render a review of what has been written on the subject necessary.

Though first described by Ritter only in 1878, it would possibly be erroneous to speak of it as an affection of the skin unknown before his article; in all probability, it had already been observed, but regarded as some rare or unusual manifestation of pemphigus or other disease, and a search through the literature of the bullous eruptions would undoubtedly reveal many cases properly examples of dermatitis exfoliativa neonatorum. Kaposi¹ claims that it was described by Hervieux, Billard, etc., and it may be granted that it was, but then they confounded it with pemphigus in the same way as C. Boeck,² who reported, in 1878, an unquestionable case of Ritter's disease as a rare form of pemphigus

¹ Kaposi: Pathologie u. Therapie der Hautkrank., Wien, 1881.

² Boeck: Ein seltener Fall v. Pemphigus neonat. Vierteljahrsschft. f. Dermat. u. Syphilis, 1878.
VOL. 95, NO. 1.—JANUARY, 1883.

neonatorum. But yet, although it is probable that the affection had already been seen, the credit of establishing its entity belongs entirely to Ritter, who in his article states that he had observed and studied it in the Foundling Asylum at Prague, during the ten years from 1868 to 1878.¹ He had already referred to it in 1868,² and again in 1870³ under different names, but after a careful study of 297 cases, he concluded that dermatitis exfoliativa neonatorum was the most applicable designation for the disease. Of the 297 the majority were males (males 165, females 132), and the percentage of mortality was very high, 48.82 per cent. The appearance of the disease occurred rarely before the end of the first, but more especially between the second and the fifth week of life. The outbreaks varied greatly in the acuteness and in the intensity of the symptoms, and in some cases were preceded by a dry, scaly condition of the skin, which had persisted after the physiological desquamation of the epidermis had taken place—Ritter's prodromal stage.

The inception of the process was shown in the sudden development of a diffuse redness, more usually upon the lower half of the face about the mouth, but this could also occur upon any other portion of the body or might be universal from the very first. From its starting-point, this hyperæmia spread rapidly and continuously or appeared in patches here and there, finally, however, becoming universal in a very short space of time or in a few days. As a rule, the extremities were the last to be affected. The mucous membranes of the mouth and nose participated sometimes in the process, and fissures formed at the corners of the former; the conjunctivæ were usually affected. The color of the skin varied from a light to a dark purple red.

Synchronously with the extension of the hyperæmia, exfoliation of the epidermis began upon the surface first affected. Great variations were presented by this stage. The exfoliation might occur without any evidences of exudation, the epidermis being slightly thickened, wrinkled, dry, and fissured into pieces of all sizes, the edges of which were loosened and which were easily removed by any slight mechanical action, the underlying rete being already covered by a thin layer of new epidermis. Or, upon the red or scarcely reddened surface of the trunk and face an outbreak of small vesicles like those of miliaria crystallina appeared, the exfoliation of the epidermis occurring afterward in the usual way; or again, the horny layer over the intensely red surface was lifted up by fluid accumulation into large, irregularly shaped, flaccid bullæ. After the exfoliation had taken place regeneration followed, at times very rapidly, the extremities requiring somewhat longer to regain their

¹ Ritter v. Rittershain: Die exfoliative Dermatitis jüngerer Säuglinge. Separat abdr. a. d. Cent. Zeitg. f. Kinderhkkde. Leipzig, 1878.

² Jahresbericht d. k. böhm Landes-Findelaanstalt f. 1868.

³ Dermatitis erysipelatosa. Oest, Jahrb. f. Pädiatrik, 1870. Bd. I. p. 26.

normal color, but the skin remained for some time scaly and irritable. In those cases in which there was no exudation, a longer time was necessary for the casting off and regeneration of the epidermis, but usually the disease ran its course in from seven to ten days. Relapses were occasionally observed ten to twelve days after the first attack, but were always mild.

In typical cases, the process was unaccompanied by any fever or systemic disturbance, unless some internal complication existed; the general functions were normal and the weight of the baby remained stationary or even increased. Fatal cases resulted either from the intensity of the attack, or from some intercurrent affection, though more usually from some of the sequelæ, furunculosis, etc., which were seldom absent, with consecutive sepsis or gangrene. Ritter regarded the affection as a form of pyæmic infection.

It would have been expected from the accuracy and carefulness of description which Ritter made, that the disease would have received greater recognition and more attention would have been directed toward it. From the number of cases he was able to observe personally, the affection cannot be so extremely rare, but yet it is remarkable how little mention of it is to be found in the dermatological literature of the world since 1878. G. Behrend¹ was the first who considered the subject after the appearance of Ritter's article. He reported the occurrence of seven cases, which he held to be examples of dermatitis exfoliativa neonatorum. Ritter (loc. cit.) had already mentioned his having seen these cases referred to in the *Bohemia*, a newspaper, but, unfortunately, neither he nor Behrend had seen them personally. They had been communicated to the latter in 1868 by Dr. Litten, of Neu-Stettin, Pomerania, who, called to Klaushagen on September 13th of that year, found that all the children born between the beginning of August and that date had suffered from a peculiar bullous affection, which ran a rapid course and from which five of the seven attacked had died. Dr. Litten gave a vivid description of the disease, which he thought was an acute pemphigus foliaceus, and Behrend also, after stating his belief that they were examples of dermatitis exfoliativa of Ritter, concluded that this latter was only an acute manifestation of Cazenave's pemphigus foliaceus. I shall have occasion to return to these cases later when speaking of differential diagnosis.

Bohn² states that he has seen a few cases. He believes it to be an acute limited dermatitis, accompanied by more or less exudation and connected with that normal desquamation of the epidermis which takes place during the first period of life. Solely on account of the exudative symptoms, he classes it with pemphigus as a pemphigoid eruption.

¹ Behrend: Vierteljahrsschrift f. Dermat. und Syphilis, 1879, II. 2.

² Bohn: Gerhardt's Handbuch der Kinderkrankheiten.

Etiologically, he can offer no explanation of its origin, but thinks it may be a local process brought about by some external influence.

Kaposi¹ claims that he has seen many such cases, both in the lying-in department of the Vienna Hospital and also in the Foundling Asylum. He agrees with Ritter that it must be kept separate from pemphigus, notwithstanding that there is some clinical resemblance between them. He does not believe in its pyæmic origin, but thinks that the affection is a result of an increase in the physiological desquamation of the epidermis of the newborn.

Brocq² refers to it as a sort of pemphigus, and Weyl,³ though describing it, advances no opinion in regard to its nature.

Caspary⁴ reported, in 1884, a case which he had observed. He also separates the affection from pemphigus and makes a step in advance, in objecting to its being considered in any way as a dermatitis. He argues on the ground of the absence of fever, which could not be the case if the process was an inflammatory one, universal and occurring in babies; who respond so immediately to any slight irritation by an elevation of temperature. He thinks that the disease represents an epidermolysis of unknown nature, with secondary hyperæmia of the cutis, and is inclined to regard it as an acute disturbance of nutrition occurring in those external layers of the skin which do not contain bloodvessels.

These few references constitute the literature of dermatitis exfoliativa neonatorum, it having been either passed over with a bare mention of its existence, or completely ignored by the majority of authors, and from them it can be seen how various are the opinions in regard to its nature and how little progress has been made in elucidating the obscurity in which it is wrapped.

During the last year I have had several cases of Ritter's disease under my care. The clinical history of only two of these, which I was able to observe through their entire course, will, however, be given here. Of the others, one I saw in consultation with another physician, in August of this year. It was a typical example of the dry form of dermatitis exfoliativa (Ritter), but there were a few small vesicles on the mucous membrane of the mouth.

I also treated a most striking case in August, 1887, in Dr. Bulkley's service at the New York Skin and Cancer Hospital, but, unfortunately, saw the little patient only twice, the parents neglecting to bring it after the second visit. I, consequently, do not know what was the result, whether favorable or unfavorable.

¹ Kaposi: Loc. cit.

² Brocq: Étude Crit. et clin. de la Dermatite exfoliative généralisée. Paris, 1883.

³ Weyl: Ziemssen's Handbuch der Hautkrankheiten, 1883.

⁴ Caspary: Vortrag gehalten am 19 November, 1883, in Ver. f. wissent. Heilk. in Königsberg. Vierteljahrsschrift f. Dermat. in Syphilis, 1884, H. 1 und 2.

Still another case appeared in Dr. Bulkley's service in September, but it was after the disease had run its course and only squamæ were to be seen. The mother's description of the clinical history was, however, unmistakable; the course of the affection had been very rapid—eleven days. The child had suffered from severe gastro-enteritis from the time the redness had disappeared, and was practically moribund when I saw it—in fact, it died a few days after.

CASE I.—The first case which came under my care was Kate W., female, age one month, born in this country of parents free from any disease. The mother had had an entirely normal labor. The baby was at birth perfectly healthy, and remained so up to the inception of the present skin affection. She has a brother, four years old, who is and has always been free from cutaneous eruptions.

The mother brought the baby to my clinic at Demilt Dispensary on June 26, 1886, and stated that discrete pustular lesions had begun to appear upon its face about one week before. They had dried up quickly, forming moderately thick yellow crusts. She had not been able to notice any change in the little patient's general condition, it seeming to be perfectly well in every way.

I found, on examination, that a uniform patch of seborrhœal incrustation was situated over the vertex, and that here and there on the face there were a few crusts and new lesions. These presented the characteristics of an ordinary discrete impetiginous eczema, and a salicylated ointment was prescribed. The baby was seen again on July 1st. The crusts and pustules had disappeared, but a diffuse redness had developed the day before upon the chin and neck, extending anteriorly to just below the clavicles, and posteriorly to the spines of the scapulæ. The skin was bright red, and desquamation had already begun on the face. There were no bullæ present nor any evidences of exudation, even when the squamæ were removed. The baby's general condition was still all that could be desired. I did not make at the time any diagnosis, preferring to wait for the further development of the process. The progression of the redness was continuous and quite rapid and by July 5th had become universal, the extremities being the last to be invaded. The mucous membrane of the mouth was not affected, nor were there any fissures around the lips. The desquamation of the epidermis, which had begun on the face, had followed progressively the march of the redness, and the surface was covered with large, thin lamellæ and scales, which came off freely on the slightest rubbing. When the baby was at rest, the body appeared as though covered with a silvery, slightly wrinkled veil, which was fissured in every direction into squamæ of all sizes and shapes, the free edges of which were rolled up and slightly loosened from the underlying surface. On the face and scalp the scales were more adherent, but on the extremities they were very marked, though the redness was not as intense as on the other portions of the body. There was no moisture found beneath any of them, but only a bright red and slightly glazed surface. Under the microscope, the squamæ were found to consist entirely of horny epidermis.

Notwithstanding that the entire skin participated in the process, yet no change in the general condition of the little patient had occurred. Its bowels were normal, it nursed and slept well, and the thermometer

showed no elevation of temperature. The course of the affection and its clinical symptoms being at this time thoroughly marked, I made the diagnosis of dermatitis exfoliativa neonatorum.

The redness and exfoliation persisted until July 15th, on which date the color began fading on the face. It proceeded rapidly and by July 19th had entirely disappeared, except upon the extremities, which remained slightly red for a few days longer. The surface was then pale, but still covered with squamæ and shreds of epidermis. In some places, it had a parchment-like appearance; in others, it was rough, scaly, and irritable. The exfoliation on the extremities had been very marked, the epidermis of the palms and soles coming off almost entire. The conjunctivæ had also become slightly reddened at the end of the second week, but this had disappeared in a few days. The hair and nails of the fingers and toes were not affected. During the entire time, from the first development of the redness to its complete disappearance, a period of three weeks, there had been no elevation of temperature, the general health of the child had been unchanged, and it had not lost in weight.

By August 3d the skin had become normal, with the exception of being still in places a little rough; but, unfortunately, the mother neglected to bring the baby to the clinic after that date or to notify me of any change. I went to her residence, however, on August 24th, and found the child in a pitiable condition.

The mother stated that in the beginning of August—she could not give the exact date—shortly after her last visit to the dispensary, the redness of the skin had returned. The relapse had lasted only a couple of days, however, and was followed by some desquamation, but the child began almost immediately to pine away. At the same time, she had noticed that the conjunctivæ of both eyes were injected, and that there seemed to be photophobia. The redness kept increasing, both corneas became cloudy, and a considerable amount of shreddy matter collected in the inner canthi, requiring frequent removal. Nothing more definite could be obtained in regard to the course of the changes which had occurred in the eyes. On examination I found the baby excessively marasmic, the skin of a dirty grayish-yellow color and covered in places with some dry adherent parchment-like scales. There was great emaciation, but the pulse was good and strong, the temperature 98° F. The bowels were regular and it was said to nurse greedily.

The eyes were found to be in a lamentable condition. The conjunctiva was slightly injected, the cornea opaque, and perforation had taken place a little to the right of the centre of each. The protrusion of the iris through the opening interfered with perfect closure of the eyelids. In view of the marasmus which existed, the child was put upon a thorough tonic treatment and nursed every two hours. Little, of course, could be done for the eyes, beyond applying gentle pressure and cold compresses.

The baby picked up and gained some strength during the next two weeks, so much so, that I directed the mother to bring it to the dispensary, as I desired to have an oculist's opinion and advice in regard to the eyes. My colleague there, Dr. N. J. Hepburn, kindly examined the little patient carefully and has given me the following description of the condition noted by him: "At time of first visit, there was found to be a perforation of both cornea, with prolapse of the irises, perforation being central in each eye, about four millimetres in the right and

two millimetres in the left. The remainder of the cornea was somewhat opaque and soft looking. The conjunctiva of the globe had a bluish blanched appearance, some enlarged and tortuous veins were present, but the arterics were very small and light colored. There was a very slight discharge of mucus mixed with epithelial debris. The appearance of the cornea was that observed after ophthalmia neonatorum, but the absence of vascularity of the ocular conjunctiva was in marked contrast to the usual appearance seen at a corresponding stage of that disease, as was also the character of the secretion. The sclerotic had rather a translucent look as in episcleritis, without, however, the nodular appearance of that affection. It was markedly different from the dead white of the normal eye, or the yellowish-white of the tissue when thickened by inflammatory action."

Naturally, the stage in which the eye changes were when first seen by Dr. Hepburn, rendered it almost impossible for him to give an opinion on the nature of the process, which had brought them about. They were only a result of what had gone on before the case was seen by either of us. Without desiring to commit himself absolutely, he said, however, in conversation, that he would be inclined to regard the eye changes as having resulted from a process similar in nature to the one which had affected the skin.

The further progress of the case was slow, the baby gained a little in strength, but it was brought to me on September 11th with the statement, that on September 9th an oozing of blood from the right eye had begun. On examining the eye, I saw that the protuberant portion of the prolapsed iris was somewhat flattened, and that the hemorrhage came from its ragged edges. I called in Dr. Hepburn and turned the patient over to him, and I am indebted to him for the report of the case while under his charge. Dr. Hepburn writes, "I found a steady oozing of blood taking place from the incarcerated right iris, which it was found impossible to control either by hot water or by styptics, even after removal of the projecting mass of degenerated iris tissue. As a *dernier ressort*, enucleation was proposed, but before it could be performed the patient died." Death occurred on the fifth day after the inception of the hemorrhage. Unfortunately, a post-mortem was refused, and it had also been impossible, during the course of the affection, to obtain a piece of the skin for microscopical examination.

CASE II.—The second case of the dermatitis exfoliativa of Ritter, which I was able to observe fully, presented itself to me in August of this year.

R. T., female, the fifth child of Jewish parents, was perfectly well at time of birth and her skin was normal. The mother stated that during the last four or five months of her pregnancy she had suffered from an exceedingly itchy eruption of little blisters upon the extensor surface of the arms and thighs, which had spontaneously disappeared two weeks before labor; this latter was perfectly natural. The description she gave did not allow the nature of the process to be determined with certainty. The father and the brothers and sisters of the baby had always been free from any skin eruption.

The inception of the little patient's affection began at the age of one month, under the form of a diffuse bright redness situated over the buttocks. Thence it spread rapidly over the rest of the body, becoming universal in about five days. No vesicles, bullæ, or symptoms of exuda-

tion were present, nor did any occur during the course of the disease. Progressively with the extension of the turgescence and hyperæmia, the horny epidermis became loosened and exfoliated, in large and small lamellæ, the entire surface being covered with the dry silvery scales, which were so easily removable that the mother's lap became covered with them during the act of dressing or undressing the baby. The exfoliation was more marked upon the trunk than upon the rest of the body, but no part of the surface escaped. During the time of progression of the disease and the consecutive exfoliation, the little patient's health remained perfectly normal and there was no elevation of temperature. The bowels, however, became toward the end of the process for a couple of days greenish and slimy, but this condition disappeared rapidly after a few doses of *oleum ricini*.

The conjunctiva had become a little reddened during the second week and there was a slight discharge of mucus. The exfoliation of the epidermis and the redness persisted for three weeks from the time of the first appearance of the latter. The hyperæmia then began to disappear rapidly and at the end of three days the skin had become pale with only here and there some squamæ and epidermis shreds. The face was the last to regain its normal appearance—the scales upon it being dry, adherent, and parchment-like. The hair and nails were not affected. The baby's general health was perfect in every way and only a few small furuncles appeared on the body as sequelæ.

The treatment of the case was entirely expectative. Care was taken to see that it was properly nursed, that its bowels remained normal. Externally, it was rubbed with salicylated olive oil, but this was used only toward the end of the disease.

I scarcely think it necessary to discuss at any length the clinical histories of these cases. A reference to Ritter's description of dermatitis exfoliativa neonatorum will show that they agree closely with that affection, notwithstanding that their course was rather slower than the average—one lasting twenty-two days, the other twenty-four. Still, it must be remembered that they were both examples of the dry form unaccompanied by exudation, and Ritter himself states that under these conditions the development of the process, the exfoliation of the skin and its return to the normal, required a somewhat greater length of time.

The afebrile course of the disease and the non-participation of the general system in the process were, perhaps, the most striking features in both cases and all the more surprising, inasmuch as the affection was universal and occurred at an age when every irritation is responded to by an elevation of temperature.

The severe implication of the eyes in the first case is also of great interest. I agree entirely with Dr. Hepburn in his appreciation of the origin of the unfortunate condition which was observed. It appears to me to have been primarily only an exaggerated form of the ocular changes occurring so frequently in Ritter's disease, and which, to a minor degree, was present in all the other cases seen by me. The exfoliation of the epithelial layer of the cornea, which took place, is to me a process

strictly analogous to the one which occurred on the skin. By means of it, the corneal tissue was denuded and exposed to the irritation produced by the movements of the eyelids, dust, etc. That under these conditions perforation resulted is not surprising, aided as they were by the greatly lowered nutrition and recuperative power of the corneal epithelium, caused by the marasmus which had developed. I do not, in consequence, attribute the perforation of the irises directly to the original exfoliative process, but regard it as only accidental and secondary to this latter, which acted as a contributing cause.

The fatality of dermatitis exfoliativa neonatorum is worthy of attention. Of the five cases which I have seen, two recovered, two died, and the fate of one is uncertain. The two deaths cannot be said to have been due directly to the disease, yet I am inclined to regard the gastro-enteritis in the one as a sequela, since it developed immediately upon the subsidence of the cutaneous symptoms, the appearance of the one coinciding with the disappearance of the other. The immediate cause of death in the case seen in 1886 was unquestionably the hemorrhage from the iris, certainly an accidental and unique one. But this, however, must be regarded as depending directly upon the marasmus, which again was, in all probability, dependent upon the dermatitis exfoliativa. So that it is perfectly just to consider this latter as the indirect or contributive cause of death.

The subject of the differential diagnosis between Ritter's disease and those cutaneous affections with which it might be confounded, is not one offering great difficulty, but yet of the very highest importance. I may, consequently, be pardoned, if I lay much stress upon it and enter extensively into its consideration, but the thorough recognition of such a severe and obscure disease of infant life is of the greatest necessity, and the accumulation of observations and facts concerning it especially desirable, since from them deductions of value may be made, and possibly an insight into the true nature of the process be obtained.

Several of the diseases of the skin in which the objective symptoms coincide more or less closely with those of certain forms of Ritter's disease, may, however, be immediately excluded, as the pityriasis rubra of Hebra, an exquisitely chronic affection of adult life, which begins on several places of the body by diffuse redness and desquamation of small branny scales, but requires months, or even one or two years, to become generalized, after which it persists for many years without amelioration and finally results in death.

The dermatitis exfoliativa of Erasmus Wilson is also a disease of adult life, which lasts from four to five months and usually ends in recovery. It is accompanied by severe systemic disturbance, fever and great prostration, falling of the hair, and shedding of the nails of the fingers and the toes.

Both of these are what may be called dry diseases, being unaccompanied by symptoms of exudation, the small pustules, etc., sometimes seen in their course, being only secondary and unconnected with either process; in consequence, they could not be considered in connection with those cases of dermatitis exfoliativa neonatorum in which the formation of bullæ is a prominent symptom.

Erythema neonatorum and erythema infantile can also be immediately disposed of, the one being the diffuse general redness developing in the course of the first twenty-four hours after birth and disappearing without desquamation; the other, that partial or universal hyperæmia of the skin which, in children, so commonly precedes and ushers in an inflammatory or febrile disease.

The affections which come more particularly under consideration, however, are erysipelas, eczema, the various forms of pemphigus, and the exanthemata.

Erysipelas occurring in the newborn is not limited to any particular time after birth; it originates most usually around the mouth or unhealed umbilical wound. It differs from Ritter's disease in its being, as a rule, localized, only exceptionally proceeding over the entire body—erysipelas migrans. In addition, the dense inflammatory swelling of the tissue, the progressive involution of the objective symptoms in proportion to their onward march, and especially the participation from the very first, and to a marked degree, of the general system, as shown by chills, high temperature, prostration, etc., present a picture of a disease bearing no resemblance to Ritter's, and which separates it, without question, from the cases reported by me. Bullæ do, at times, occur also in erysipelas—erysipelas bullosum; but their formation is both preceded and accompanied by the general phenomena already given and, consequently, ought not to render the diagnosis at all doubtful.

Acute eczema in infants, when universal, or partly so, is also accompanied by fever and systemic disturbance; on the cutaneous surface polyform symptoms are found—vesicles, pustules, crusts, patches of weeping, and of red scaly skin being distributed without regularity over the surface. Here and there, where the eruption is not so intense, it can be seen that the redness is not diffuse primarily, but results from the aggregation of small separate lesions. The character of the desquamation is different from that seen in Ritter's disease. The squamæ do not come off easily and in great quantity, are not lamellous and composed of epidermis alone, but are more or less thickened by the dried-up serous exudation, are small and yellowish in color. There is a greater tendency to the formation of crusts. There will also be evidence of itching shown by the movements of the child, whose general systemic condition deteriorates rapidly. During the final changes of an acute eczema the desquamation of the epidermis is more abundant; but even

then, there will be found patches of weeping, a tendency of the disease to remain chronic in places, a slow course and the antecedent clinical history of vesicles, pustules, crusts, etc.

Eczema intertrigo, when it extends from its customary localization—the inguinal region, the axilla, etc.—to the rest of the body, loses the characteristics belonging to it and then presents the same symptoms as already given, those of acute eczema in general. In consequence of this fact, the second case reported here, though beginning upon the buttocks and vulva, a favorite localization for intertrigo, could be and was easily recognized as Ritter's disease, since all those symptoms of eczema, which have been given, were wanting throughout its entire course.

Chronic eczema could scarcely come under consideration here. The squamous form, at any rate, could alone be brought in, but readily recognized, since it is preceded by an acute outbreak, which leaves the skin in places thickened, infiltrated, slightly scaly, with a tendency to acute outbreaks of vesicles or other lesions, and excessively itchy. It does not become universal and its course is slow and chronic, depending upon an acute eruption for its extension.

Ritter himself has stated that his dermatitis exfoliativa was more liable to be confounded with pemphigus than any other affection. That can, however, be the case only when the exfoliation of the epidermis is produced in part by exudation, causing the formation of bullæ, but cannot naturally have any reference to the examples of Ritter's disease, which run their course without any exudative symptoms. Pemphigus means essentially a bullous disease, one in which the bullæ are always present, even though at times imperfectly formed, and for that reason is effectually separated etiologically from dermatitis exfoliativa neonatorum, which occurs also in a dry form and in which the presence of bullous lesions is secondary and not a *sine qua non* of the disease. Naturally, my cases do not come under consideration in making the differential diagnosis between pemphigus and dermatitis exfoliativa, since they were most marked examples of the dry form of that latter disease, but only those accompanied by the development of bullæ are referred to.

Pemphigus vulgaris may be at once omitted, since it runs the same chronic course in children as it does in adults, but there are two forms of the disease to be carefully considered—the pemphigus neonatorum simplex acutus, which has been repeatedly described as occurring endemically and epidemically (Olshausen,¹ Mekus,² Ahlfeld,³ Moldenhauer,⁴ and Dohrn,⁵ etc.), and pemphigus foliaceus.

The pemphigus simplex acutus, like Ritter's disease, belongs to the first weeks of life, but appears earlier, sometimes in the first few days

¹ Olshausen and Mekus: Archiv f. Gynäk., 1870.

² Ibid.

³ Ahlfeld: Archiv f. Gynäk., 1874.

⁴ Moldenhauer: Ibid., 1874.

⁵ Dohrn: Ibid., 1876 and 1877.

after birth, but more commonly between the fourth and the eighth and only rarely after the fourteenth day of life. It does not begin with diffuse redness, but with an eruption of bullæ of various sizes, round and oval in shape, which arise from an erythematous uninfiltreated base. These are discrete, situated here and there over the body, healthy skin intervening and after a short existence they either burst or dry up. The bullæ continue appearing, either singly or in crops, for a week or more, but the affection rarely lasts after the first month of life. In severe cases it has been calculated that as much as one-half of the epidermis has been cast off by the bullous process.

In this form of pemphigus, as in Ritter's disease, there is no constitutional disturbance, but the former is usually benign even when epidemic. If, however, the number of lesions has been very great and extensive denudation of the cutis has occurred, fever, insomnia, and digestive disturbances ensue, but a fatal result is usually caused by marasmus.

From the facts just given, it is evident that in pemphigus the bullæ are the essential feature of the disease, whereas, it has already been shown that in the dermatitis of Ritter they are only secondary and not a necessary factor; the extension of the latter over the surface is, moreover, independent of the bullæ, in the former dependent upon their development; and, in addition, the bullæ of Ritter's disease are irregular in shape, not clearly defined or limited, nor separated from each other by intervening portions of healthy skin—that is, having characteristics and peculiarities widely different from the lesions of pemphigus simplex.

Some cases of pemphigus neonatorum acutus run a somewhat different course from the one already given, without, however, approximating any more closely to Ritter's disease. In these, the bullæ are very large from the first, and do not rupture easily. Their fluid contents undermine the epidermis around their peripheries, causing a great increase in their size; they become confluent with others and finally bursting, expose a cutis covered over with a pulpy layer of sodden rete and epidermis shreds and scales. The appearance of the skin in these cases is very much like that presented by a pemphigus foliaceus. (Abegg,¹ Moldenhauer,² etc.)

Here I would return to the cases reported by Behrend (*loc. cit.*), which were mentioned in the beginning of this article. Dr. Litten, in his letter to Dr. Behrend, states that the outbreak of the disease began in the first few hours or days after birth, by the formation of bullæ on various portions of the body, but more especially upon the abdomen. They arose from a more or less reddened uninfiltreated base, were flaccid, did not burst, but by undermining the epidermis in their peripheries, they rapidly enlarged to the size of the hand, or even occupied the

¹ Abegg: Ueber Contag. d. Pemph. neonat. acut. Jahrb. f. Kinderheil., 1876.

² Moldenhauer, *loc. cit.*

entire abdomen. The lifting up of the epidermis by the fluid contents of the bullæ progressed over the entire surface in a very short space of time, and finally rupturing, left the body denuded and raw. Death resulted very soon after. Dr. Litten concluded that they were examples of acute pemphigus foliaceus, and he was this far right, that they were cases of the pemphigus simplex acutus resembling the foliaceous form. A comparison of his vivid description with that given by Abegg and others can but be convincing of that fact, and in my opinion Behrend's conclusions, that they were examples of Ritter's disease, and that consequently this latter is only an acute pemphigus foliaceus of Cazenave occurring in infants, is entirely unacceptable and based upon invalid premises.

It would seem almost superfluous to mention the pemphigus foliaceus of Cazenave in connection with dermatitis exfoliativa neonatorum, and I do so only for the sake of completeness. All authors agree in regarding it as a disease of long duration, of great gravity, and accompanied by cachexia. It usually appears as the final stage of a pemphigus vulgaris, though occurring occasionally very early, and it requires months to become generalized. It is evident that there are no features in common between the two, and the same can be said in regard to the pemphigus syphiliticus neonatorum. This latter differs from Ritter's disease in that it is always a bullous affection, the lesions of which are discrete and localized, especially upon the palms and the soles, only a few developing upon the face and body. Under the crusts, which form by the drying up of the bullæ, ulceration takes place and in addition other evidences of syphilis are commonly present—mucous patches in the mouth or at the anus, etc.

The exanthemata alone remain for consideration, but should offer no difficulty, owing to the marked hyperpyrexia and participation of the general system accompanying them, symptoms entirely wanting in Ritter's disease. Besides, in measles the catarrhal symptoms are present, in scarlatina the angina, etc., and in both the redness of the skin is not primarily diffuse, but composed of an aggregation of minute red points. The general course of each, the manner in which desquamation occurs, and the entire clinical history of each, are so entirely different from the dermatitis exfoliativa of the newborn, that it would be impossible to confound them with one another.

The treatment of these cases of Ritter's disease is, as may be imagined, entirely symptomatic. During the period of exfoliation, protection from irritation is advisable. It would be better to wrap the baby in soft cotton rather than in its clothes, and application of an antiseptic ointment or oil should be made over the entire body. This will aid in preventing the development of furuncles, etc., as sequelæ. Baths of a decoction of white-oak bark are also beneficial. Of greater importance

however, is the general hygiene of the little patient. It should be nursed regularly, and its bowels attended to properly. Should any internal complication arise, it should be treated appropriately. Furuncles or phlegmonous infiltrations occurring as sequelæ should be opened with the knife as early as possible and dressed antiseptically, or, if in the case of furuncles this is objected to, a twenty-five to fifty per cent. ichthyol ointment will be of great service and decidedly beneficial.

It is time now to consider the nature and origin of this obscure cutaneous affection of the newborn, but, unfortunately, there is very little to be said which is satisfactory. It is true that an explanation has been sought for it by each observer, with the result, however, that each has regarded the process as due to a different cause, and has seen in the phenomena attending its development and its course totally opposite pathological processes. Each of these theories is, nevertheless, open to contest, and while offering a possible explanation, yet on examination is found to leave the disease as completely wrapped in obscurity as before.

Ritter's idea of his dermatitis exfoliativa was that it represented a form of pyæmia of the newborn. To judge by my cases, however, and by the general features pertaining to the disease, there seem to me to be insurmountable objections to this view. It is impossible to imagine a pyæmic process without there having been a purulent focus as a starting-point, or one which, being universal, remains localized in the horny layer of the skin, or which running an acute course is unaccompanied by febrile movement, and yet, if this dermatitis exfoliativa is accepted as pyæmic in nature, all these factors have to be regarded as unnecessary and unimportant. Ritter advanced in support of his pyæmic theory the furunculosis and phlegmonous processes which occurred as sequelæ, yet it is perfectly apparent to-day that they are only secondary and in reality unconnected with the original cutaneous affection. The laying bare of the cutis through the exfoliation of its epidermis, or on mucous surfaces of the epithelium, allows microorganisms of all kinds to obtain easy access to it, and among these may be those pathogenic ones which, lodging in a suitable nidus, cause the inflammatory changes and processes—furuncles, phlegmons, etc. That pyæmia may develop from these secondarily and in consequence of the formation of pus is perfectly possible, and it seems to me to be the only way in which pyæmia can arise in dermatitis exfoliativa neonatorum and cause those changes which Ritter found on the post-mortem table and which he ascribed to a primary pyæmic infection.

Bohn's theory (*loc. cit.*) that the disease is a dermatitis is, I think, disposed of by Caspary (*loc. cit.*). That it is connected with (Bohn), or only represents, a great increase (Kaposi, *loc. cit.*) in the physiological desquamation of the epidermis of the newborn, is also unsatisfactory.

It might be applicable to those cases occurring very early after birth, but how could it explain those developing at the age of one month or later—that is, some time after that natural process had ceased? Besides, the mere fact of an increase in desquamation would not necessitate hyperæmia, except secondarily, whereas we find that the exfoliation follows after the redness and proceeds progressively with its extension. Furthermore, it aids us in no way in understanding the implication of the conjunctivæ, of the mucous membranes of the mouth and nose, surfaces not accidentally attacked, but almost regularly affected in Ritter's disease.

Behrend's conclusions (*loc. cit.*) have already been dealt with, so do not need being referred to again.

I must acknowledge that Caspary (*loc. cit.*) has given the most acceptable explanation of any yet advanced, but still it leaves much to be desired. I would agree with him that it is not a dermatitis, but further than that I should not wish to commit myself. Nor would I at present give any theory of my own, since I have not had the opportunity of making any post-mortem examinations, or of studying the skin microscopically, or of seeing a large number of cases, so that any opinion which I should advance would have to be incomplete and speculative. I can but hope that I may some time obtain such material as will permit me to prove that view of dermatitis exfoliativa neonatorum which I have formed, but which I am not as yet ready to acknowledge.

In concluding this description of Ritter's disease and of the two cases which I have been able to observe closely, I would only add, that I hope it will awaken the interest of American practitioners in this peculiar affection of infants, and that it will not be long before it will be readily recognized and so many observations upon it have been made by them, that its elucidation will be a matter of no great difficulty. Of course, until that is done we must remain powerless to prevent or to influence its course in any way, matters of very great importance owing to the high rate of mortality attending its outbreaks.

23 EAST THIRTY-FIRST ST., N. Y.

THE ANTI-BACTERIAL ACTION OF IODOFORM.¹

By J. AMORY JEFFRIES, M.D.,

OF BOSTON.

For some years iodoform has been in general use as an application for all sorts of sores, ulcers, and wounds, and regarded as a reliable germicide. This quality of iodoform has been questioned—indeed, its

¹ The work for this paper was done in the bacteriological laboratory of the Harvard Medical School, according to the rules laid down at the Hygienic Institute at Berlin.

value in surgery denied—by Heyn and Rovsing.¹ Since then, quite a war has been waged in Germany, between the believers in the value of iodoform and their antagonists. To contribute certain points toward the solution of this question is the object of this paper.

The early literature bearing on the subject is meagre to a degree. Mikulicz² made two sets of experiments with various nutritive fluids, among them urine and a half and half solution of blood and water. In the first set one portion of fluid was passed through a filter covered with a layer of iodoform, and the other portion through a like filter without iodoform. Both sets of fluid were then placed in a warm chamber, and the changes noted from day to day. The parts passed through the iodoform showed slightly less turbidity and remained longer free from foul odors than the others. The difference was most marked in the blood mixture, which also had the strongest odor of iodoform. In the second set of experiments, Mikulicz simply added iodoform to half of each fluid and then treated as before. He found the parts containing iodoform showed retarded cloudiness, and the blood, even after ten days, was not foul-smelling, but aromatic.

Renno³ experimented as regards the virulence of pus, from two abscesses, mixed with iodoform; in one case with no result, in the other with an apparent slight diminution in activity.

Lastly, Behring⁴ studied the question and came to the following conclusions: Blood is the only healthy tissue that frees iodine from iodoform; iodine is set free by putrefaction and by stinking wounds. Hence, iodoform is inert in a dry wound, except putrefaction occurs.

Looking over the above articles, it at once becomes apparent that they are very inconclusive; nothing else could be expected, as bacteriology did not exist and the causes of suppuration were unknown. Renno's observations are too few for any deductions; Mikulicz's only touch putrefaction as tested by transparency and odor; while Behring, by assumption, classes all pathogenic bacteria as putrefactive. Yet, all point to some action where putrefaction is going on.

We now come to the recent and more extensive literature. Heyn and Rovsing made a series of experiments in the laboratory with pure cultures of *staphylococcus pyogenes aureus* and a few ill-determined species. All the experiments were made in accordance with the accepted rules, and are free from errors of method. They are divided into the following series: Gelatine tubes inoculated on the surface and then coated with iodoform; gelatine and agar-agar tubes mixed with iodoform

¹ Heyn Chr. und Rovsing Thorkild: Das Iodoform als antisepticum. Fortschr. der med., 1887, Bd. v. No. 2, S. 33-47.

² Mikulicz: Langenbeck's Archiv f. klin. Chirurgie, Bd. xxvii. Heft 1, 1881, S. 196-239.

³ Renno: Centralbl. f. klin. med., 1883, No. 50.

⁴ Behring: Ueber Iodoform und Iodoformwirkung. Deutsch. med. Wochenschr., 1882, No. 9 S. 146-148.

and then inoculated; infected ligatures exposed to the action of four per cent. iodoform oil and then planted; iodoform mixed with blood serum and then inoculated; bacteria mixed with dry iodoform and planted; gelatine exposed to an iodoform spray; cultures from an iodoform tampon, and, lastly, the injection of cultures of *staphylococcus pyogenes aureus* and iodoform into rabbits. In every case the result was the same as in the control experiments conducted the same way, save for the omission of the iodoform. Hence the authors conclude that iodoform is no antiseptic, and is not indicated in surgery as at present applied.

Slightly prior to Heyn and Rovsing, Lübbert¹ published a monograph on *staphylococcus pyogenes aureus*, one set of experiments in which coincides with and confirms those of Heyn and Rovsing.

Objections at once came in from all sides, but since they are not based on experiments or careful observations, they may be summarized as follows: that laboratory tests are no evidence of what occurs in the body; that in these tests, no iodine, by virtue of which iodoform acts, was set free. Strangely enough, none have pointed out that the experiments only disprove a germicidal action, but do not exclude an inhibitory action on their growth. The injurious effects of crowding are so great, in solid cultures, as soon to cover up any slight inhibitory action of the iodoform.

Next Rovsing,² in continuation of his first set of experiments with Heyn, inoculated the anterior chambers of the eyes of three rabbits with a mixture of one part of tubercle rubbed up with five parts of iodoform. In two more rabbits he inoculated one eye with the mixture, and the other with pure tubercle. Tuberculosis developed in every case. By these experiments Rovsing claims that the specific anti-tuberculous action of iodoform is disproved.

Shortly Lübbert³ returned to the subject, and reported the results of injecting a mixture of *staphylococcus pyogenes aureus* and iodoform under the skin of rabbits, in pockets under the skin, and in muscle wounds; all gave the same results as the control experiments conducted without iodoform. He also injected iodoform ether, and then the bacterium into the knee-joint, with positive results.

Sattler⁴ experimented with silk threads saturated with *staphylococcus pyogenes aureus*, dusted with iodoform, and then laid on gelatine plates. He found that the growth of the coccus from threads thus treated was decidedly slower than from threads which had not been exposed

¹ Lübbert: Biologische Spaltpilzuntersuchung. Der *Staphylokokus pyogenes aureus* und der *Osteomyelitis kokkus*, S. 109, Mit 2 Taf. Würzburg, 1886.

² Rovsing: Hat das Iodoform eine antituberculöse Wirkung. Fortschr. der med., 1887, Bd. v. No. 9, S. 257-266.

³ Lübbert: Ueber das Verhalten von Iodoform zum *Staphylococcus pyogenes aureus*. Fortschr. der med., 1887, Bd. v. No. 11, S. 330-345.

⁴ Sattler: Sitzungsbericht d. Deutsch Ophthal., 1883, S. 89 u. 98.

to the action of iodoform. No control experiments with inert powders are reported.

About the same time Behring¹ claimed that iodoform only acted, when decomposed, in virtue of acetylen being set free.

Since the work of my own paper was completed, an article by Snger² has come to hand, which contains two claims of importance: first, that the presence of non-growing anthrax bacilli causes gelatine tubes to dissolve; second, that iodoform limits the growth of the anthrax bacillus, and also prevents their taking in a re-inoculation.

Thus, while the early authors noted a distinct action on putrefaction, the more recent writers have failed, for the most part, to note any action on the pus-producing bacteria. On the other hand, the mass of opinion from clinicians is in favor of the drug. Here is an antagonism of opinion that should not exist; clinical experience and laboratory experiments should lead to the same result; if not, one or both must be wrong. The evidence from neither one nor the other can be blindly accepted or safely ignored. To discover a way out of the dilemma is the object of this paper.

The first set of experiments was made in the same way as those of Heyn and Rosing, to verify or disprove them, and, if possible, to discover a plan or suggestion for further experimentation.

A. To five test-tubes of melted gelatine was added five per cent. of iodoform, and the mixture solidified while rotated in ice water, so as to catch the iodoform in suspension. The five were then inoculated with my experiment bacillus. My experiment bacillus was derived from water, is long, rapidly moving, and dissolves gelatine.

2d day. All five tubes growing.

14th day. All five tubes completely dissolved. Fresh tubes inoculated from the above gave a good growth. No difference noted from the pure gelatine cultures made at the same time.

B. Five tubes of gelatine were solidified on the slant and inoculated with a line of staphylococcus pyogenes aureus, after which the whole surface was covered with a layer of iodoform, five millimetres thick.

3d day. Three of the tubes have taken, two show no signs of growth.

10th day. One of the two has now begun to grow.

32d day. The last tube has suddenly begun to grow.

No difference between the three and the control tubes noted; test-cultures gave a pure growth of staphylococcus pyogenes aureus.

Experiments similar to *A* and *B* were made with iodol and salol; all gave prompt results. Later, two tubes of each class were inoculated with staphylococcus pyogenes citreus and albus, staphylococcus citreus flavus and albus, and bacillus pyogenes foetidus, making twenty tubes in all. All gave prompt positive results.

¹ Behring: Ueber Iodoform und Acetylen. Deutsch. med. Woch., 1887, No. 20.

² Snger: Ueber die Einwirkung des Iodoforms auf das Wachsthum und die Virulenz der Milzbrandbacillen. Deutsch. med. Woch., No. 331, 887, S. 726-728.

C. Three of the tubes from *B*, after the gelatine was all dissolved, were left in a window looking to the south for six weeks. At the end of this time test-tubes were inoculated from them. All gave pure growths of staphylococcus pyogenes aureus. When the cultures were made I also tested for iodine with starch paper, but failed to get any reaction.

D. Five tubes of solidified blood serum were inoculated with staphylococcus pyogenes aureus, and then covered with iodoform. Examination on the tenth day gave a good growth of staphylococcus pyogenes aureus in all.

E. Fifteen tubes of fluid blood serum were divided into sets of five, and had added five per cent. of iodoform, iodol, and salol, respectively; after this all were inoculated with staphylococcus pyogenes aureus.

8th day. Iodoform tubes almost clear, with a few flocculi; salol and iodol tubes a little muddy. Gelatine tubes, inoculated from the serum tubes, showed one of the iodoform and iodol tubes to be contaminated by a small white coccus, and the staphylococcus pyogenes aureus to be active in all. Starch-test for iodine was negative, though all the tubes had stood in the light.

F. A mixture of my experiment bacillus and iodoform, in the proportion of about one to thirty, was made, and allowed to stand for twenty-four hours; the mixture was then planted on gelatine, with a prompt positive result.

Besides the above, I made some two hundred experiments with all sorts of bacteria, gelatine, and five per cent. of iodoform; all gave good growths, though some were retarded, as in the two tubes mentioned in *B*. This retardation I attribute to the mechanical separation of the bacterium from the gelatine. The bacteria could easily be separated from the gelatine when shaking the tubes to distribute the iodoform over the surface, when, thanks to the repellant property of iodoform to water, they would have no access to food for growth. That the bacteria were not killed is shown by their ultimately taking.

As it has been claimed that iodoform only acts in solution, as in iodoform oil, either directly or indirectly, iodine being set free, the following set of experiments was made with milk. Milk was selected on account of its containing fats, albuminoids, sugar, and salts, thus offering opportunity for dissolving the iodoform, and for the formation of derivative products, which might break up the iodoform into active principles.

G. To each of four tubes of sterilized milk, containing five per cent. of iodoform, was added a drop of staphylococcus pyogenes aureus in water. In all the following experiments the bacterium used was suspended in sterile water, and one drop of the water used for each tube, by this means a uniform inoculation was procured.

7th day. Little apparent change, agar-agar tube inoculated from each.

13th day. All the agar-agar tubes contain pure cultures of staphylococcus pyogenes aureus in good development.

H. Two tubes of milk, handled the same way as *G*, with the omission of the iodoform, gave the same results.

I. Five tubes of sterile milk with five per cent. of iodoform were inoculated with water, containing my experiment bacillus.

5th day. Cream normal, below the cream a clearish zone, like soapy water, of fluid, lower three-fourths of milk appears normal; no visible curds.

10th day. Same, except clear zone much larger. Agar-agar tubes inoculated.

14th day. Three of the agar-agar tubes pure, two impure. Milk gives no iodine reaction with starch paper.

J. As a control to *I*, five other tubes of milk, without the iodoform, were put through the same routine. They finally gave pure cultures of the bacillus. At no time did they differ in appearance from *I*.

K. Five tubes of sterile milk, with five per cent. of iodoform, were inoculated with a drop each of water, containing bacillus butyrius.

2d day. No visible change.

4th day. No visible change.

8th day. No visible change; no smell; but a very disagreeable, bitter taste in all. Agar-agar tubes inoculated.

15th day. Three of the agar-agar tubes contain pure cultures, two impure, of *b. butyrius*.

L. Five other tubes of sterilized milk, without iodoform, put through the same course, gave the same results.

M. A short, stout bacterium was isolated from some very foul milk, and used in the fifth generation in the following experiment. It was selected on account of the very active changes it caused in milk. Five tubes of sterilized milk, with five per cent. of iodoform, were inoculated by a drop each of water with the bacillus.

3d day. Cream softened up, more fluid, looks oily; milk clearer at the top, bottom denser; decided putrid odor. Agar-agar cultures made.

6th day. Agar-agar cultures pure.

N. This series was the counterpart of *M*, with the exception of the iodoform. No difference, except more smell, could be detected.

O. In the following was used what I presumed to be the putrefying, fluorescing bacillus, and five tubes of five per cent. of iodoform milk.

3d day. All coagulated in a big clot, whey clear.

10th day. Bad stink, like cheese. Agar-agar cultures made.

14th day. Four agar-agar cultures, pure and impure.

P. Control to *O*. No difference observed in the milk or the stench. Agar-agar cultures, all pure.

All the above experiments gave negative results, except the more moderate stench in the tubes inoculated with putrefying bacteria, and confirm those of Lübbert, Heyn, and Rovsing. They show that iodoform is not a germicide, and since cultures were got from all, are opposed to Sängers result with the anthrax bacillus.

Next I took up the thread experiments of Sattler, and shortly satisfied myself that they were accurate. Growth does not readily take place from contaminated threads, provided they have been dusted with iodoform. But this in itself is no proof of any action other than physical on the part of the iodoform. The bacteria must be brought in contact with the nutritive material in order to grow, and by covering the threads

with iodoform we do our best to separate them from it. Ordinarily, the fluid absorbed would be sufficient to start their growth, did not iodoform, like lycopodium, repel water, and thus keep the threads dry. To test the above, ninety threads contaminated with *staphylococcus pyogenes aureus*, were divided into lots of thirty and dusted with iodoform, chalk, and lycopodium; all were then carefully laid on gelatine plates. The average taking of the threads was as follows: chalk, second day; lycopodium, fourth day; iodoform, fifth day. In view of the action of the lycopodium, it does not seem safe to draw any conclusions from this kind of experiments.

Having noted as Mikulicz points out, that fluids to which iodoform had been added remained clear longer than usual, the following set of experiments was made with bouillon:

Q. To three tubes each containing ten cubic centimetres of bouillon was added five per cent. of iodoform, and then one drop of water with *staphylococcus pyogenes aureus*. Three more tubes exactly the same, except for the iodoform, were prepared and all six stood in the same rack. At the end of twenty-three hours agar-agar plate cultures, each containing one drop of bouillon, were made. The plates made from the tubes with iodoform came very thick, too thick to count, yet distinct; those made from the simple bouillon were just like ground glass.

The above was repeated three times, but the drop of bouillon was diluted in ten cubic centimetres of water, a drop of which was taken for the plates. These could be counted and gave from two to four times as many colonies in the plates made from the simple bouillon as in those with iodoform. For instance, one lot gave me 20,000, 20,000, and 21,000, as compared with 5000, 6000, and 7000. Of course, the counting, or reckoning of so large a number of colonies is not accurate, but does not give room for any such errors as the difference mentioned above.

R. The same as *Q*, except that the fluorescing putrefying bacillus was used. Here the count gave 10,600, 10,000, and 14,300, against 33,000, 31,000, and 34,000 without iodoform. Besides this, at the end of ten days the iodoform tubes had but a moderate odor, while the others were very offensive.

Here at last we have proof, from laboratory experiments, of a detrimental action of iodoform on bacteria; for, by counting, the difference is clearly brought out. The greater or less degree of smell is of doubtful significance, since iodoform rapidly allays the stench from putrid bouillon. Here, since the bacteria have already produced the foul odors, the action cannot be due to diminished propagation, but a direct chemical action of the iodoform on the noxious substances is probable, unless its odor hides them.

The bacterial growth of ulcers and wounds is not capable of being reduced to a count, but by making cultures before and after the use of

iodoform, some idea can be got. For this purpose I selected six ulcers of the leg, because there was little chance of the iodoform doing any good; if the wounds had improved, any difference in bacteria might be justly attributed to the improvement and not to the iodoform. First, the lightest possible line culture was made, then the ulcers powdered with iodoform, and at the end of two days a new line culture made. Comparison of the cultures made before and after the use of iodoform showed a much stronger growth in the first set. This difference is to be ascribed in part to the direct action of the iodoform and partly to the drying of the wound. For iodoform does check the secretion and thus produce a food famine among the germs.

As a result of all the experiments, we may safely conclude that iodoform has no direct action as a germicide, a result agreeing with Heyn and Rovsing, also, that germicidal products are, probably, not derived from it in the presence of growing bacteria. On the other hand, the experiments with bouillon show that the presence of iodoform markedly retards the growth of bacteria, an action not before proven, and diminishes the foul odors of putrefaction. The diminution in odor cannot be ascribed to the action of iodoform on the bacteria, as pointed out before.

Why the iodoform failed to give positive results in the Heyn and Rovsing class of experiments is obscure. It may be due to the fact that in spite of the iodoform, crowding quickly occurs, the injurious effects of which, by restricting, quickly obliterate the action of iodoform.

Looked at from the clinical side, the ultimate object of all medical research, the following rules may be accepted:

1. Iodoform not being a germicide is not a fit substance to use to procure asepsis of instruments, materials, or wounds.
2. Iodoform is allowable, with the present state of our pharmacopœia, in infected wounds where the true germicides are contraindicated, as by danger of poisoning or impracticability.
3. As has long been known, iodoform has a decided tendency to stop serous oozing, and, therefore, may be indicated in wounds where the moisture threatens the integrity of the aseptic or antiseptic dressing.

RHEUMATIC LARYNGITIS.¹

BY E. FLETCHER INGALS, A.M. M.D.,

PROFESSOR OF LARYNGOLOGY IN THE RUSSIAN MEDICAL COLLEGE, CHICAGO.

RHEUMATIC laryngitis is a painful affection of the vocal organ, attended by more or less hoarseness and fatigue of the parts after talking, and sometimes by grave or even fatal obstruction of the glottis.

¹ Read before the Section on Laryngology at the Ninth International Medical Congress, Washington, September, 1887.

The affection may be either acute or chronic. The acute disease, from having been associated with articular rheumatism, has been recognized for several years, but it has been but little studied, and the literature of the subject is meagre.

Through the kindness of Dr. J. S. Billings, the library of the Surgeon-General's Office has been searched for me, but we have succeeded in unearthing only two articles upon the subject. The first of these, from a thesis of E. J. A. E. Emery Desbrousses,¹ 1861, relates to a case of acute febrile articular rheumatism with laryngeal localization, which terminated fatally. The patient was a woman twenty-four years of age, suffering from acute articular rheumatism and pericarditis. On the fourth day the larynx became involved, causing aphonia and severe pain, with suffocative attacks, which continued with varying severity until her death from slow asphyxia on the twentieth day. At the autopsy the arytenoids were found bare, but not necrosed, and on the left side a reddish serous fluid was found in the articulation, which demonstrated the rheumatic laryngeal arthritis. This seems to have been the first case placed on record, though brief references to the affection have been made by Besmer, Chomel, Lieberman, Dechamp, and Prof. Jaccoud, and cases have also been recorded by Fauvel, Coupard, and Joal.

The second paper is a very complete article on the subject by R. Archambault (Thesis, Paris, 1886). He gives a careful history of the literature of the subject, and has collected five cases, one by Emery Desbrousses, just referred to, one by Fauvel, and two by Coupard; to these he adds the history of one which came under his own observation. From these cases he draws the following conclusions:

1. Acute laryngeal manifestations of rheumatism are more common than is generally supposed.
2. These manifestations may affect separately the various parts of the larynx, mucous membrane, articulations, muscles, and nerves.
3. The congestions of mucous membranes are the most frequent as well as the most easily determined of the lesions.
4. They may give rise to accidents of suffocation, grave enough to necessitate surgical intervention.
5. The other manifestations are too uncommon and too little known to make a thorough and separate study of them.

TREATMENT.—Care should be taken to prevent the frequent occurrence of the laryngeal congestion in individuals predisposed to it, by taking care to avoid exposure to cold and dampness. The abnormal susceptibility of the larynx should be combated by fomentations of cold water upon the neck, and, at the same time, general bathing.

At the commencement of an attack, absolute rest should be enjoined, the use of diaphoretics to keep up activity of the skin, and the use of emollient gargles and inhalations of steam, with or without aromatics. If the case is very severe, a more energetic medication is advisable; hot fomentations, and application of tincture of iodine externally. If necessary, the use of vesicants should be resorted to, applied in front of the larynx. Leeches may

¹ *Rheumatisme articulaire aigu, febrile localisation laryngée, péricardite et pneumonie; mort.* 40. Strasburg, 1881, 25, No. 544 (These).

often be applied to advantage. If the pain is very severe, applications or solution of muriate of cocaine by means of a sponge-carrier will give relief. The administration of salicylate of soda is at times beneficial, but not so much so as in simple rheumatism. When suffocation is imminent, tracheotomy must be performed, as the only means of avoiding a fatal termination.

Of the chronic rheumatic laryngitis, to which I would call attention, I can find no mention in medical literature.

For many years past I have, from time to time, observed chronic painful affections of the larynx, attended by no erosions or ulcerations, and by but little congestion and swelling of the part. At first I was inclined to consider these merely cases of neuralgia, but several years ago I became convinced that they were not all of neurotic origin, and during the past two years several similar cases have been under my care which have confirmed me in the opinion that they are rheumatic in character.

At the last meeting of the American Laryngological Association, Dr. S. H. Chapman, of New Haven, Conn., read a paper on neuralgia of the pharynx and larynx, in which he described cases that seemed at first similar to those to which I refer. He thought them to have been caused by malaria. A careful perusal of his article will show that they were quite different from the cases I would term rheumatic.

The affection to which I wish to direct attention usually occurs in a person of rheumatic diathesis, but often the larynx or the tissues about the hyoid bone present the only evidence of the constitutional affection. In this disease, as in the chronic rheumatism of a mild character, which often affects the joints, or, as in muscular rheumatism, the pain is not constant, but may frequently disappear for a few days, especially during fine weather, to return again on slight exposure, or with changes in the temperature. Its course is erratic, but nearly always obstinate. These patients frequently have inherited or acquired a predisposition to rheumatism, and it is not unusual for them to complain of rheumatic pains in other parts of the body, but, singularly, they never suspect the true nature of the disease.

Several of the cases I have seen have been troubled with the pain for several months before coming to me, and I have usually found them filled with apprehensions of cancer. In no case has pain been very severe. In certain cases it has been most noticeable on using the voice, but it is often more troublesome when swallowing, and in some it is aggravated by every attempt at deglutition even of saliva. However, it varies in intensity from day to day, or from week to week, being nearly always worse in damp or chilly weather.

Patients commonly refer the pain to one side of the larynx, when this organ alone is involved, but in some cases it is also referred to the trachea, the region of the greater cornu of the hyoid bone, to the base of the tongue, or to the lower part of the tonsil on the corresponding side. In similar cases we sometimes find the pain confined to these latter regions,

there being no involvement of the larynx, but even in these the patient is liable to experience fatigue of the vocal organ after talking. Hoarseness and loss of voice are also frequent symptoms.

Upon inspection of the parts, one or both arytenoids may be slightly congested, or the redness may be confined to one side of the fauces, or to the pharynx. The vocal cords remain clear and the inflammatory symptoms seem altogether inadequate to account for the discomfort. In some cases the parts involved are slightly swollen, but in others no change of form is noticeable.

The diagnosis of chronic rheumatic laryngitis must be based on the history and symptoms, and the exclusion of neuralgia, and the various affections which cause organic change in the part. Acute catarrhal inflammations, chronic syphilitic laryngitis, and abnormal growths may be easily excluded. Tubercular laryngitis in its inception is often attended by fatigue of the larynx after talking and sometimes by pain, even before there is ulceration or swelling; but it has a different history from the rheumatic affections. In tubercular laryngitis the parts are usually paler than in health, while they are slightly congested in the rheumatic affection. In the tubercular disease the constitutional symptoms are marked, not so in the rheumatic.

Fully developed tubercular laryngitis cannot be mistaken for the affection under consideration.

In malignant affections of the larynx pain is often present, but from my observation I conclude that it does not often precede pronounced organic changes, therefore they are not likely to be confounded with the affection under consideration.

Rheumatic laryngitis is most likely to be confounded with neuralgia or paræsthesia of the organ. In distinguishing between these, the history must be carefully scrutinized, and rheumatic or neuralgic pains must be looked for in other parts of the body. In the rheumatic affection there are usually slight redness and swelling; not so in neuralgia. For confirmation of the diagnosis, we must sometimes await the results of treatment.

Rheumatic laryngitis usually runs a chronic course, extending over periods varying from two months to one or more years. In most cases, if not in all, there are periods of immunity from the soreness, but at other times there are quite severe exacerbations of pain. I recall one case which was troublesome at times for four or five years. Recovery may be expected ultimately, and the patient may and should be assured that the disease does not endanger life.

In the treatment of chronic rheumatic laryngitis I have derived considerable benefit from the local application of stimulant and astringent sprays, or pigments, and in some cases galvano-cauterization of the congested surface seems to have aided much in recovery. However, I have

relied mainly upon internal remedies suited to the diathesis. Iodide or potassium, salicylate of soda, guaiac, eclehieum, and einmieifuga, have all been tried with more or less success. Extract of phytolacca has been given with apparent benefit, and oil of gaultheria, in doses of fifteen minims, three times a day, has at times given satisfaction.

By way of illustration I have selected from my note books, records of a few cases that demonstrate the characteristics of this affection.

CASE I.—Mrs. W., æt. thirty-two. General health perfect. About four years ago this lady complained of almost constant pain in the larynx, which, however, varied greatly from time to time. Upon examination, the whole throat, as well as the larynx, was found congested; but the pharynx was so exquisitely sensitive that she could scarcely tolerate inspection, and, therefore, declined any local treatment. This patient's father had been almost a cripple from rheumatism for many years; other ancestors had suffered greatly from it, and the patient herself had frequently been subject to rheumatic pains; but at the time referred to, there was no manifestations of the disease, excepting the pain in the larynx. She was not subject to neuralgia. Antirheumatic remedies were ordered and taken for a short time, but were not persisted in, as she had lost all faith in remedies for rheumatism, excepting the waters of a certain so-called Magnetic Spring, which had at times relieved her father.

Whether or not she visited the spring, I do not know, but the soreness continued at intervals for about two years, when it, with other rheumatic symptoms, gradually disappeared, and she has since been perfectly well.

CASE II.—Mr. H. G., farmer, æt. forty-seven. General health good, but he was morbid on the subject of cancer of the throat. He had been complaining for two months of pain and a sense of fulness in the larynx, which he feared would choke him. The soreness was not constant, but would come on quite suddenly, last three or four days, and then gradually subside.

The morbid sensations, when I first saw him, were referred to the upper part of the left side of the thyroid cartilage. When the attacks were at their worst his voice was husky, and occasionally he had been aphonic for a short time. He had been frequently annoyed by muscular rheumatism, and he stated that he felt "lame and tired all over his whole body" when the exacerbations came on.

Laryngoscopic examination revealed moderate congestion of the epiglottis and left wall of the larynx, with very slight swelling of the latter, also very slight congestion of the vocal cord, but nothing more. On touching the part with a probe, he claimed that the sensitive spot was either on the inner surface of the left wall of the larynx, or else just external to the left wing of the thyroid cartilage, but he was not quite certain which.

I placed the patient on twenty grain doses of bromide of potassium, four times a day, and fifteen minim doses of oil of gaultheria. I also applied a sixty grain solution of nitrate of silver to the left side of the larynx. Eight days later it was noted that he was almost well, and was to have returned to his home, but the soreness had reappeared lower down, at the upper portion of the trachea. During the next few days the pain shifted to the larynx again, and then to a point beneath the

sternum. Sixteen days after I first saw him he returned to his home, free from pain, with directions to take iodide of potassium, grains vijss, and oil of gaultheria, minims xv, three times a day. I learn that the pain returned, subsequently, from time to time.

CASE III.—Miss T. G., æt. twenty-two. General health good. Her voice had been weak for four years, whenever she attempted to shout, but this gave her no special discomfort. For a month before consulting me she had been complaining of aching in the tonsils, larynx, trachea, and substernal region whenever she used the voice for a few minutes. The soreness was always worse in damp weather. Examination of the larynx showed paresis of the right vocal cord, which moved through only about one-third its normal excursion, but there was neither swelling nor redness.

In this case there was no previous rheumatic history, and there were no signs in the larynx excepting those of paresis.

Her principal symptoms were of only a month's duration, and I, therefore, concluded that the paresis was either of recent origin, or that it had nothing to do with the present attack; she complained of other pains which seemed rheumatic; she had always been worse in damp weather, and under the influence of salicylate of sodium, acetate of potassium, and oil of gaultheria she improved rapidly, so that I think the diagnosis was fairly established.

Just as I was completing this paper the patient returned, after several months' absence, complaining of severe and constant pain in the same regions as before. She had been free from pain for several weeks, during the interim, but it had recently returned with increased severity. No abnormal signs could be seen in the larynx, even the paresis having disappeared, and the evidences of rheumatism were more pronounced than ever before.

CASE IV.—Mr. J. C. R., æt. thirty-nine. Patient complained of pains in the shoulders, chest, and back of the head, and of aphonia of four months' duration. He had suffered several attacks of inflammatory rheumatism, and had been frequently troubled with slight attacks of sore throat. General health good. Weight, pulse, and temperature were normal.

On examining the larynx, I found bilateral paralysis of the lateral crico-arytenoid muscles, with inability to close the glottis on attempted phonation, but there was no congestion or swelling.

In this case the pains, and possibly the paralysis, seemed to be of rheumatic origin. I saw the patient only once, and have not heard the result of treatment.

CASE V.—Mr. C. F. M., æt. twenty-nine. General health perfect. Had complained of soreness of the throat much of the time for four months, of occasional hoarseness, and of rheumatic pains in the back and chest, and in the regions of the trachea and hyoid bone. These pains were always aggravated by damp weather and by exposure to night air.

Under the influence of stimulant applications to the throat and anti-rheumatic remedies internally, he speedily improved; but every four to six weeks, with some renewed exposure, his symptoms have returned. He is at present well, but I expect renewed attacks.

Besides these, several other such patients have been under my care, and I am confident that similar cases have presented themselves to other

laryngologists, but we have been accustomed to class them with cases of neuralgia or paræsthesia, with no very definite idea of their etiology, and but little hope of benefit from treatment.

I am confident that, with more critical observation, we will find many cases similar to those I have described, which are due to the same causes as muscular or articular rheumatism, in which we will obtain far better results from treatment than we have been accustomed to, if we bear this in mind, and prescribe accordingly.

64 STATE STREET, CHICAGO.

THE INFLUENCE OF LEUKÆMIA UPON PREGNANCY AND LABOR.

By JAMES C. CAMERON, M.D.,

PROFESSOR OF OBSTETRICS IN MCGILL UNIVERSITY, MONTREAL.

OUR knowledge of leukæmia is at best fragmentary and incomplete; for its etiology is uncertain, its course and symptoms variable, and its treatment unsatisfactory. It occurs more frequently in men than women (at least 2:1, according to Osler¹); but even in the few recorded cases of leukæmia in women the effect of the disease upon the reproductive functions is barely mentioned. We find it stated that sometimes menstrual and sexual disturbances are among its early prodromata; that it is most frequent at the climacteric; that in a few cases it has developed during pregnancy or after several miscarriages or difficult labors; that it has occasionally followed the sudden suppression of the menses from cold; that in non-pregnant leukæmic women amenorrhœa is the rule, though occasionally menorrhagia has been observed. Uterine hemorrhage seems to be rare, for Mosler² says that in 81 cases of leukæmia observed by himself and Ehrlich, hemorrhage occurred in 64, and that in only 3 was there hemorrhage from the uterus. In 21 cases of leukæmia in women observed by Mosler, disorders of the reproductive system occurred in 16.³ M. Vidal⁴ says that in four cases out of ten, pregnancy is the commencement of the disease in women. I have been able to find the reports of only four cases in which leukæmia was said to have occurred in the course of pregnancy; I have found none where a woman already leukæmic has been known to become pregnant.

A case was reported by Dr. Ingle to the Cambridge Medical Society—

¹ Pepper's System, vol. iii, p. 909.

² Ziemssen's Cyclopædia, vol. viii, p. 355.

³ Ibid. vol. viii, p. 506.

⁴ Dictionnaire Encyclopédique des Sciences Médicales. Leucocythémie.

in 1880.¹ The patient, æt. thirty-three, when near her confinement showed extreme pallor and weakness. On examination the blood showed none of the characteristic changes found in pernicious anæmia, but there was a marked increase in the number of white corpuscles, so that white to red = 1:20. After a natural labor with very little bleeding, the symptoms persisted and fainting fits began; but she recovered completely under a course of iron. She had suffered in a similar way toward the end of her last confinement, but regained her health in the interval.

In May, 1870, Dr. Robert Paterson² read a paper before the Edinburgh Medico-Chirurgical Society on "Acute Leucocythæmia in connection with Pregnancy," in which he reported three cases, two of them fatal upon the eleventh and fourteenth days respectively after delivery. These cases, though interesting, are not very satisfactory, because no blood counts were made, the relation of the white to the red being roughly estimated during an ordinary microscopic examination, and no autopsy was held upon the fatal cases. The first fatal case reads very like one of acute puerperal septicæmia, and even in the second sepsis was probably an important factor. Dr. Paterson attributed death in both cases to the more or less rapid enlargement of the lymphatics of the throat, neck, and upper part of the chest. He says that he has carefully watched a number of cases during the latter months of pregnancy, and has always found that where there was marked sallowness of skin with general languor and tendency to faint, the blood was always crowded with leucocytes, even though spleen, liver, and glands were not enlarged; and that whenever these symptoms were absent, leucocytes were not abnormally abundant. I have been unable to find any other cases at all bearing upon the relations between leukæmia and pregnancy.

The following case, which I have still under observation, is unique and has some points of peculiar interest:

Mrs. S., æt. thirty-six, VII-para, was first brought under my notice in October, 1886, by Dr. George Ross, Professor of Clinical Medicine in McGill University. She was then seven months pregnant. During the autumn of 1885 she had been under treatment for leukæmia in Dr. R. L. MacDonnell's clinical wards in the Montreal General Hospital, and to him I am indebted for the earliest reliable report we have of her condition. Briefly her history then was as follows:

September 15, 1885. Mrs. S. entered Montreal General Hospital complaining of vomiting and a tumor in the left hypochondrium. Has been married fourteen years, has had six children (the youngest three months old), all living, and all subject to attacks of jaundice more or less severe. One attack of rheumatism at the age of thirteen. Never had malaria, though she lived in a malarious district in England until

¹ Lancet (London), 1880, vol. i. pp. 334, 335.

² Edinburgh Medical Journal, vol. xv. pp. 1073-1078.

the age of fifteen. Three years ago she came from England to Montreal, a city free from malaria. Since marriage has had occasional attacks of jaundice, ushered in by chills, vomiting, and slight abdominal pain. Occasional attacks of epistaxis ever since childhood. Diarrhœa a common symptom. Syphilis, alcoholism, and injury negative. Menstruation began at the age of thirteen—always scanty—intervals sometimes prolonged to six weeks. No pain until the last three years, since which time she has suffered pain in back, pelvis, and groins. Splenic tumor was first noticed by her about a year ago, at the beginning of her sixth pregnancy. She has been losing flesh for three years, but in the intervals of her icteroid attacks she is fairly well, though weak. The present attack began ten days ago with a severe rigor and fever; then followed anorexia, nausea, vomiting, constipation, sleeplessness, slight cough, and increasing feeling of weakness. She nursed her baby until the milk ceased, a few days ago.

Physical examination. Appears weak, pale, and anæmic—conjunctivæ pearly—a sallow tinge of skin, but no jaundice. Muscles soft and flabby. Temp. 103° ; pulse 104, regular and of good volume; resp. 28. Tongue coated and moist; attacks of vomiting occur three or four times daily; skin harsh; no œdema, ascites, or enlarged veins. Splenic tumor extends from sixth left rib obliquely downward toward the umbilicus, and backward to the post-axillary line—oblique measurement 23 cm. (9 inches)—feels firm and smooth, and is notched on anterior edge. Liver dullness begins at the fifth rib and extends 5 cm. (2 inches) below costal border—measures 16.5 cm. ($6\frac{1}{2}$ inches) in mammary line; border sharp and well defined, surface smooth and firm. There is moderate tenderness over liver and spleen, and moderate tympanites, though the abdominal walls are flaccid. Lymphatic glands not enlarged. Heart: apex beat between fifth and sixth ribs, 11 cm. ($4\frac{1}{2}$ inches) from mid-sternum. The area of dullness considerably increased, beginning above at third rib and transversely about mid-sternum. A systolic murmur soft and blowing, maximum at apex, transmitted up to pulmonary cartilage, but not around to the left. Second sound normal at pulmonary cartilage, but very feeble at the aortic. Lungs clear throughout. Urine: heavy deposit of lithates. Retina unchanged.

17th. Red corpuscles per c. mm. 2,400,000. W : R = 1 : 40.

25th. Red corpuscles per c. mm. 2,900,000. W : R = 1 : 17. White cells all of large size.

October 31. Red corpuscles per c. mm. 2,480,000. W : R = 1 : $12\frac{1}{2}$. White cells nearly all small and more the shape of red cells.

November 2. She left hospital and gradually regained health so as to be able to do housework without much fatigue.

January 28, 1886, her menses reappeared and lasted one week, varying in amount from day to day, very little at times, and again at times so profuse as to compel her to lie down from sheer weakness.

March 28. Menses appeared again, but were very scanty. Soon afterward morning sickness began, and during the next few weeks there were several attacks of epistaxis and melæna. The urine became high colored and scalding, and over the hepatic region dragging pains were felt, increased by overwork.

April 28. She again entered hospital. The spleen was found to be somewhat sensitive, and the liver so tender that she could not bear the slightest pressure. There was slight dyspnoea, but no œdema of feet.

or legs. Lips and gums pale; no fever or thirst; tongue clean, moist, and indented; appetite failing; abdominal walls flaccid. Temperature 98.4° , pulse 74. Lower edge of spleen extended downward to within 7.5 cm. (3 inches) of the left anterior superior spinous process. The vertical line of dulness in midaxillary line measured 15 cm. (6 inches), the oblique line 24 cm. ($9\frac{1}{2}$ inches). Liver dulness extended from sixth rib to costal margin. Blood: red corpuscles per c. mm. 3,400,000. $W : R = 1 : 50$. She was put upon a course of arsenic and iron and left hospital on May 3d, when a blood count showed, red corpuscles per c. mm. 2,900,000. $W : R = 1 : 45$.

October 8. She again entered hospital and for the first time came under my care. Her health was fairly good all summer, till about a week ago, when she had a sudden attack of vertigo while ironing. She fell to the floor and remained unconscious for about half an hour. Ever since she has suffered from headache. The next day she felt soreness over the epigastrium, aggravated by movement. Temp. 98.6° , pulse 108, resp. 20. Œdema has appeared in face, feet, and legs, varying in amount according to position. Thirst, anorexia, vomiting, dyspnoea on the slightest exertion, occasional attacks of epistaxis are now the chief symptoms. The dyspnoea is growing worse; there is no diarrhoea. The urine is orange-yellow in color, acid, sp. gr. 1015, contains 10 per cent. of albumen, but no sugar or casts. Splenic dulness 28 cm. (11 inches) in the oblique measurement. Hepatic dulness 15 cm. (6 inches). Blood, pale and watery-looking, hæmoglobin very pale, red corpuscles small. Red corpuscles per c. mm. 1,070,000. $W : R = 1 : 10$. After this she had repeated attacks of epistaxis and diarrhoea; the dyspnoea and œdema became rapidly worse, till at last she could not lie down at all and could get a few snatches of sleep only when in the knee-elbow position or propped up in a chair. During the two days immediately preceding labor, the attacks of epistaxis were frequent and uncontrollable, continuing for a couple of hours and then suddenly stopping. She grew so weak and faint that her condition became alarming, and it was with great difficulty that she was removed to the University Maternity Hospital. Soon after her arrival there slight labor pains began; in about three hours the liquor amnii came away and with it came the child (Oct. 29th). Not a drop of blood was to be seen. Frictions were applied to the fundus and after an hour and a half the placenta was carefully pressed off. Not a drop of blood was lost either then or afterward. Involution was excellent; the lochia were scant and slimy, without a tinge of blood, and ceased in a couple of days. Some hard seybulous masses gave her trouble for a few days. Her appetite was ravenous and could scarcely be controlled. A thin, watery fluid could be squeezed from the breasts, but there was never any tension or flow of milk. She convalesced rapidly and was discharged from hospital on the twelfth day.

Child. A female, born on the 214th day from the cessation of menstruation; weight, $4\frac{1}{2}$ pounds; length, $18\frac{1}{2}$ inches; length of cord, 20 inches. Apparently strong, slept well, nursed vigorously from a healthy breast, and thrived nicely for the first day. The following morning, however, the mother clandestinely put the child to her own breast. It sickened at once; in a few hours a purpuric rash appeared on its face and spread slowly over its back and chest; it vomited and purged and in spite of every care died on the fourth day.

Blood two hours after birth of the child. *Mother*, red corpuscles per c. mm. 990,000; $W : R = 1 : 4$. *Child*, red corpuscles per c. mm. 5,210,000; $W : R = 1 : 175$. At the end of the third day another count was made. *Mother*, red corpuscles per c. mm. 1,100,000; $W : R = 1 : 20$. *Child*, red corpuscles per c. mm. 5,000,000; $W : R = 1 : 150$.

On the day of her discharge from the hospital the count showed, red corpuscles per c. mm. 1,900,000; $W : R = 1 : 35$.

The *placenta* was sent for examination to Dr. W. G. Johnston, Demonstrator of Pathology in McGill University; the following is his report:

Placenta, eighteen hours after delivery, was of normal size. Nothing special in its appearance. Blood in sinuses looked thin, pale, and watery; that in placental vessels only slightly clotted, in most places quite fluid and of a dark rich color. With the hæmatocytometer (Zeiss-Thoma), *placental vein: trunk*, red corpuscles per c. mm. 4,610,000, white 26,000; $W : R = 1 : 173$. *Branch*, red corpuscles, per c. mm. 4,600,000, white 36,000; $W : R = 1 : 128$. *Placental artery*, red corpuscles per c. mm. 5,410,000, white 20,000; $W : R = 1 : 270$. *Placental sinuses*, red corpuscles per c. mm. 950,000, white 263,000; $W : R = 1 : 3.6$ nearly.

NOTE.—The average of three counts was taken—the maximum and minimum were very near the average—no marked difference in any count; difference was under five per cent., which is the error allowed by this method. Hæmoglobin not estimated.

Microscopical examination of blood showed some nucleated red cells in samples from the *artery and vein*, but not in abnormal number. Nothing especial in the white cells on examination by Ehrlich's method of fixing and staining. In the *sinuses* a large number of small pale cells were found, highly refracting and difficult to distinguish from leucocytes. They were over one-tenth the number of red cells. In estimating the number of white cells, only those were counted which were obviously of that nature—doubtful cells were not included in either count—nucleated cells were not specially numerous in the blood.

Autopsy upon the infant, ten hours after death. Body fairly well nourished, numerous petechial spots about face, thighs, and neck, otherwise nothing of note externally. Thymus and thyroid normal, organs all normal, spleen not enlarged, Malpighian corpuscles distinct, but not enlarged. Blood was fluid and dark colored—nothing abnormal on microscopical examination. Bone-marrow red and abundant everywhere, also normal microscopically. Further careful microscopical examination of the organs showed that no collections of leucocytes existed, and that the thymus, thyroid, and spleen were normal.

After her discharge from the Maternity Hospital, Mrs. S. enjoyed tolerably good health, her color improved, the dyspnoea and oedema disappeared, and she gradually resumed her household duties. The menses appeared in December and returned regularly for a few months; and for the first time in her life the flow was profuse and bright red. They last appeared on April 28, 1887, shortly after which she again became pregnant. A little blood was occasionally vomited when the morning sickness was specially severe. The *splenic tumor* began at once to enlarge, just as it did when she was last pregnant.

July 12. Oblique line of splenic dulness 20.5 cm. (8 inches), and edge of spleen within 9 cm. ($3\frac{1}{2}$ inches) of the umbilicus. Downward in the axillary line, the dulness extends 20 cm. (8 inches) reaching the

crest of the ilium. No increase in hepatic dulness. *Blood*, red corpuscles per c. mm. 1,406,000; $W : R = 1 : 20$.

August 18. Looks more pale and puffy, splenic dulness about the same. *Blood*: red corpuscles per c. mm. 1,373,000; $W : R = 1 : 3$. Since the last count the red cells have not diminished very much, but the white cells have enormously increased.

Family of Mrs. S.: Grandmother, mother, and brother have suffered from symptoms pointing probably to leukæmia.

Walter, æt. fifteen, clerk in an office, is in poor health, feels languid and dull, and is losing flesh; slight splenic enlargement. July 13, 1887, red corpuscles per c. mm. 3,355,000; $W : R = 1 : 200$. August 18th, red corpuscles per c. mm. 3,240,000; $W : R = 1 : 275$.

Arthur, æt. fourteen, July 13, 1887, red corpuscles per c. mm. 4,725,000; $W : R = 1 : 350$.

Lydia, æt. eleven, July 13, 1887, red corpuscles per c. mm. 4,795,000; $W : R = 1 : 350$.

Louisa, æt. eight, was treated for leukæmia in Montreal General Hospital from October 5, to December 12, 1885. Splenic dulness then extended two inches below the costal margin, and stretched over toward the umbilicus. She is now in poor health, very puffy in cheeks and eyes, with spleen considerably enlarged, both laterally and vertically. October 12, 1885, red corpuscles per c. mm. 1,912,000; $W : R = 1 : 15$. December 2, red corpuscles per c. mm. 3,576,000; $W : R = 1 : 16$. July 13, 1887, red corpuscles per c. mm. 4,220,000; $W : R = 1 : 300$. August 18, 1887, red corpuscles per c. mm. 3,183,000; $W : R = 1 : 240$.

Charles, æt. six, July 13, 1887, red corpuscles per c. mm. 4,525,000; $W : R = 1 : 350$.

Freddy died December 26, 1885, æt. six months; was apparently pretty well until the mother's milk failed, a few days before her admission to the Montreal General Hospital (September 15, 1885). On examination at the hospital he was found to be leukæmic, with enlarged spleen, diminution in red and increase in white corpuscles. Unfortunately, the record of his blood count has been mislaid. He died three months afterward from abscess. No autopsy was held.

The chief points of interest in this case seem to be

1. The *family history*: Grandmother, mother, and brother of the patient have suffered from symptoms probably pointing to leukæmia. Two of her own children have had well-marked leukæmia, another is now in ill health with diminished red cells and enlarged spleen. None of her children reaches the standard of 5,000,000 per c. mm. All have had attacks of jaundice. Does heredity play any part in this case?

2. *Splenic enlargement* was first noticed by the patient at the *beginning* of her sixth pregnancy.

3. *Splenic and hepatic enlargement* always occur during pregnancy, and are generally accompanied by tenderness.

4. The *blood*: the progressively enormous increase of white cells with a decrease of red as pregnancy advances.

5. *Absence of uterine hemorrhage* during labor and the puerperal period; labor was dry and bloodless and the lochia untinged with red.

6. Rapid subsidence of œdema and dyspnœa after the termination of labor, together with the rapid increase in the number of red, and decrease in the number of white corpuscles.

7. The *extent* of recovery, so as to be able to resume household duties, and the remarkably chronic course of the disease in this case.

8. The *recurrence of pregnancy*—now the third time since splenic enlargement was first noticed.

9. Remarkable difference between the blood of the mother and child, and in the placental vessels and sinuses.

10. The disastrous effect upon the child of nursing from its own mother's breast—purpura, vomiting, purging, and death.

REMARKS ON A CASE OF TUBERCULOSIS PULMONUM; WITH DUODENAL ULCER,

BY WILLIAM PEPPER, M.D.,

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

AND

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE UNIVERSITY.

THE following case is of interest, not only on account of the difficulties of diagnosis which it presented, but as illustrating the value of some of the modern methods of scientific research.

Richard F., æt. thirty, born in Ireland, single, clerk, was admitted to the Hospital of the University of Pennsylvania, December 2, 1886. One brother is suffering from some lung affection; the rest of the family history is good. Except for the ordinary diseases of childhood, the patient had always been well until the year 1884, when, after four days of constipation, he was seized with violent colic and fever. His physician told him it was inflammation of the bowels due to a large collection of feces. This attack lasted about a week, and soon afterward his digestion began to be impaired. He suffered from a sense of weight in the epigastrium, with eructations of a clear watery fluid. Great disturbance of the digestion with loss of health continued, and in 1882 he came to this country, hoping that he might derive benefit from the change of climate. No gain in health was experienced, and during the last three years he has vomited very frequently from one-half to three or four hours after taking food, especially in the evening. There is a sensation of burning and pain in the epigastrium. Gas accumulates in quantities; is belched, and passed *per rectum*, and is a source of great distress. The bowels are constipated and require laxative medicine. He has never noticed that any one article of diet was borne better than others. His last medical attendant diagnosed dilatation of the stomach.

On December 3d the following note was made. The patient is very

much emaciated and extremely anæmic. The thorax is unusually long and narrow; the costal margins approaching the crests of the ilia very closely. Respiration is costo-abdominal and the expansion fairly good. Physical examination of the chest shows puerile breathing and normal heart sounds. The abdomen is scaphoid and its walls very lax. The liver and spleen are normal. The gastric tympany is very much increased, extending from the sixth rib to the level of the umbilicus in the left mammary line; and in the transverse umbilical line from the right costal margin to the left posterior axillary line. A distinct splashing sound can be produced, and dulness on percussion can be elicited at the lower boundary when the patient sits. No tumor or tenderness on pressure can be detected. There is no œdema of the body. The urine contains no albumen or sugar; specific gravity 1026.

He was given peptonized milk and was allowed to chew meat which had been slightly broiled. Tr. cardamomi comp. f ʒss, with drops viij of chloroform, was prescribed as a palliative. The stomach tube could not be employed at first, and systematic lavage was deferred.

10th. Hæmoglobin 65 per cent.; red blood cells 4,600,000 in c.cm. = 92 per cent. There is no alteration in the shape of the red globules, nor increase in the number of the white. The gastric tympany has greatly diminished.

14th. Weight, 97½ pounds.

25th. Been better until yesterday; then some eructations and epigastric pain. Vomited several times last night; matter watery; no blood.

28th. Nourished by nutrient enemata until to-day. Better. Peptonized milk recommenced.

Jan. 9, 1887. There has been no vomiting. Fowler's solution commenced to-day in doses of 2 drops thrice daily.

22d. The condition of the stomach has improved very greatly. Has vomited only once (on the 9th); the ejected matter consisting of a cupful of clear liquid, though he occasionally has a sensation of pain in the epigastrium causing great discomfort. Yet the general condition of the patient is worse; and the anæmia, weakness, and emaciation greater. Hæmoglobin to-day 25 per cent., and red blood cells 1,952,000 in c.cm. = 39 per cent. Weight on the 16th, 90 pounds. A sense of induration and resistance can be perceived over an area two inches square, just to the right of the pyloric region. It is apparently superficial and somewhat movable, yet not very distinct, in spite of the great laxness and thinness of the abdominal walls. Ordered iron with the arsenic.

Feb. 6. A distinct pleuritic friction is to be heard on the right side, below, and in front. There has been a slight cough and very slight muco-purulent expectoration for a few days. No other abnormal sounds heard in the lungs.

12th. Following Riegel's method, an examination of the secretion of the stomach was made yesterday. A meal of milk, rice, and bread was given at 11 A. M. At 5.15 P. M. the gastric contents were removed with the sound, and found to be nearly completely digested. They were filtered, and the filtrate chemically examined, but by a misunderstanding the matter remaining on the filter was not preserved.

The methyl-violet reaction showed free hydrochloric acid to be abundantly present. Uffelmann's carbolated iron test for lactic acid gave a negative result. The biuret reaction was obtained with very much greater distinctness than was in accord with the quite narrow ring

which Heller's test produced; thus showing that peptone was present. 25 cubic centimetres of the filtrate completely digested 5 centigrammes of freshly boiled egg albumen in 24 hours. The examination proved, therefore, that there was no defect in the quality of the gastric secretion. On physical exploration of the thorax to-day friction râles are heard in the same situation as before. At the right apex vocal resonance is slightly louder than on the left side; expiration is somewhat prolonged and loud, with a few moist râles at the end of inspiration, and there is slight dulness on percussion. The right supra- and infra-clavicular fossæ are slightly more depressed than the left. The sputum contains *myriads of tubercle bacilli*. The patient had at no time exhibited fever until the 5th inst.; from which date until to-day the temperature has ranged from 98° to over 101° F.

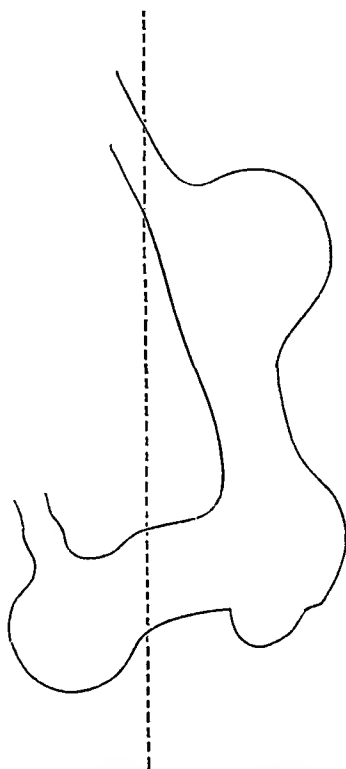
16th. Patient complains of night-sweats, and has a hard, dry cough, with scanty expectoration. Last night he vomited about one quart of a dark liquid not containing blood. This is the first occurrence of vomiting since January 9th.

24th. The physical signs of consolidation at the upper part of the right lung have become more pronounced. Vocal resonance is distinctly increased, expiration prolonged and broncho-vesicular, with a few râles at the end of inspiration. The percussion resonance is impaired in the supra- and infra-clavicular spaces, and in the supra-spinous fossa; and nearly flat in the infraspinous region. There are also decidedly increased vocal resonance and quite bronchial respiration high up in the right axilla. The temperature has continued slightly elevated, though seldom rising above 100°.

27th. Left the hospital, but was visited occasionally at his home. From this time the patient slowly failed. His emaciation became even more extreme, as did his anæmia, although no blood count was made. On April 8th there was virtually no expectoration and almost no cough. Enemata of hydrogen disulphide and carbonic dioxide after the method of Bergeon were begun on this date. Night-sweats had been troublesome. On June 4th he died. Gas had been administered with occasional intermissions up to a few days before death—*i. e.*, during a period extending over fifty-seven days. No benefit whatever had been experienced; and, in fact, the expectoration had decidedly increased during a portion of the time in which the treatment was being employed. The enemata frequently occasioned severe colic. He had been annoyed sometimes by a return of the severe gastric symptoms lasting several days, but these attacks were comparatively rare. The extreme noisiness of the locality in which the patient spent the last months of his life rendered it impossible to make a satisfactory examination of his lungs, though it was evident that the disease was extending.

The autopsy revealed a pyopneumothorax of the right side; the pleural cavity containing about two pints of very offensive sero-pus. The right lung was collapsed, and riddled with cavities in the upper parts. The left lung was but very little affected by the tubercular process. The stomach was of so peculiar a shape that we give an outline sketch of it drawn at the time. It lay nearly vertical, and was of a tubular form with three sacular dilatations. The largest, at the cardia, was about three inches in all its dimensions. Just below this portion the lumen of the stomach for a distance of three inches was but 1½ inches in diameter; it then widened to 2½ inches, forming a second expansion,

again narrowed into another short tube of $1\frac{1}{2}$ inches in breadth, and once more widened immediately above the pylorus into the third pouch, slightly smaller than the second. The mucous membrane appeared to be everywhere normal, except where it had undergone post-mortem



Outline sketch of the stomach.

digestion. No ulcer or cicatrice could be found. The pyloric ring was thickened and narrowed, but admitted the index finger. Just beyond it there was an ulcer $\frac{3}{4}$ inch in diameter, situated on the posterior wall of the duodenum. It was still open, and a bloodvessel of medium size was distinctly visible at its base. The base itself was smooth, the edges rounded, and the ulcer only depressed a few lines. The tissues surrounding it and about the pylorus were much thickened, and the neighborhood of the ulcer slightly puckered. The ilium and lower part of the jejunum contained numerous ulcers with the peritoneum over them discolored. The first of these was at least two or three feet from the solitary duodenal ulcer. The spleen, liver, and kidneys were normal.

Microscopical Examination.—The mucous membrane of the stomach was nowhere affected, except at the part immediately adjacent to the pylorus, where decided atrophy was visible, caused, apparently, by an abundant small-celled infiltration. The tissues surrounding the duodenal ulcer were somewhat infiltrated, and a great increase of the amount of connective tissue was observed. In the vicinity of the ulcer, and especially beneath its base, were scattered numerous nests of micrococci. No tubercle bacilli were to be found. The walls of the ulcer in the ilium were filled with the infiltration of small cells and crowded with tubercle

baeilli. Nests of micrococci were also found, similar to those in the tissues of the duodenal ulcer.

In the study of the symptoms of this case the intense anæmia was early noticed as the most prominent, and attention was directed to the discovery of its source. Among the possible causes of anæmia suggesting themselves was Bright's disease. The urine had at no time, however, shown any trace of albumen, and there were no other grounds for believing organic disease of the kidney to be present. Leukæmia, pseudoleukæmia, and splenic anæmia were out of the question. There was no history of malaria, nor any reason to suspect poisoning by any mineral substance or an infection by syphilis. Symptoms of heart disease were absent, and there was no history or evidence of hemorrhage or of sepsis. Of the remaining possible causes of anæmia in this case the presence of intestinal parasites was the most unlikely, although anæmia is perhaps more frequently caused by them than is generally supposed. Yet in Reyer's cases of anæmia, due to the presence of *Bothriocephalus latus* (*Deutsches Arch. f. klin. Med.*, B. xxxix. H. 1 and 2, 31-69), there was no loss of adipose tissue, and the symptoms were exactly those of pernicious anæmia. The same is true of Runeberg's cases (*Deutsches Arch.*, B. xli. H. 3, 304). *Ankylostoma duodenale* and allied worms have also produced the same symptoms, as seen, for example, in the Gotthard tunnel-workers' disease of Gricsinger, and the African chlorosis, brick-burner's anæmia, and mountain cachexia of other writers; but their occurrence is so rare that they cannot be taken into consideration here.

Pernicious anæmia was excluded, first of all, by the existence in this case of extreme emaciation. There would seem at times to be some confusion in the application of this term, but as employed by Biermer and his English predecessors it does not apply to cases in which marked emaciation is present. In most instances, indeed, the fat is exceedingly well preserved. Then, too, in the case under discussion there was not the poikilocytosis which is so usually seen in progressive anæmia. It should be observed, however, that this peculiar change in the shape of the red blood cells is not an essential characteristic of this disease; and, on the other hand, that it sometimes occurs in other forms of anæmia as well. We have seen it well developed, for instance, in a case of gastric ulcer, where large amounts of blood had been repeatedly lost by hæmatemesis. Another characteristic of pernicious anæmia is that the percentage of hæmoglobin is equal to or greater than that of red blood cells, while in anæmia of other types the reverse is true. This fact contraindicated the presence of this affection in the case of F., for when the blood cells were 93 per cent. the hæmoglobin was but 65 per cent.,

and at another measurement they were represented by 39 per cent. and 25 per cent. respectively.

Anæmia from atrophy of the gastric tubules, though perhaps more properly classified with pernicious anæmia, is purposely separated from it here, partly because it is readily conceivable that emaciation may accompany this condition, partly because, as in Ewald's case (*Berl. klin. Wochensch.*, 1886, 527), there may be more or less complete atrophy without much anæmia. It is true that nearly all the reported cases presented the characteristic symptoms of pernicious anæmia, including the preservation of the adipose tissue. As the starches and fats are digested independently of the state of the stomach, there is, indeed, no reason why the subcutaneous fat should disappear. Yet the gastric symptoms are so prominent in this condition, that the disease may with some propriety be classified separately. Moreover, in certain of the cases reported there had been decided loss of flesh. This is true of some of those quoted by Fenwick (*Atrophy of the Stomach*, 1881), though not of those which were under his personal observation. The patient of Henry and Osler (*Amer. Journ. Med. Sci.*, April, 1886) had fallen in weight from 306 to less than 140 pounds, although the fat was still fairly well preserved. The authors think this loss of weight must not be regarded as a symptom in their case. In Lewy's case, too (*Berlin. klin. Wochensch.*, 1887, No. 4), there was progressive emaciation, though it must be stated that this patient had a carcinoma in addition to the total atrophy of the mucous membrane, and both of Kinnicutt's cases were much wasted (*Trans. Assoc. Amer. Phys.*, vol. ii., 1887). We have discussed this matter more particularly, because the query early arose whether our case could be an instance of atrophy of the gastric tubules with extreme emaciation of the body. That there was no gain in body-weight in spite of the food administered and retained rendered the truth of this supposition at least possible. But the examination of the contents of the stomach, as described in the clinical history, seemed to prove beyond a doubt that there could be no widespread atrophy of the glands.

There was no evidence of carcinoma of any part of the body unless of the stomach; and as regards its existence here, the sense of induration in the pyloric region was suspicious, but not decisive. The diagnostic value of the examination of the gastric secretion is brought out most emphatically by this case. The result of this excluded the presence of carcinoma ventriculi.

Riegel (*Zeitsch. f. klin. Med.*, B. xi. H. 2 and 3, 167) made in 1885, 1379 examinations in 122 cases of diseases of the stomach, and found hydrochloric acid constantly absent in carcinoma. His experience in 1886 (*Zeitsch. f. klin. Med.*, B. xii. H. 5 and 6, 426) with 134 cases of

gastric disorders, only strengthened his opinions. The investigations of Korczynski and Jaworski (*Deutsch. med. Wochenschr.*, Nos. 47, 48, 49, 1886) confirm this in almost every instance, as do those of Sansoni (*Rivista Clinica*, 1886, No. 10). Thus, in spite of the publications of Cahn and von Mering to the contrary (*Deutsch. Archiv f. klin. Med.*, B. xxxix. H. 3 and 4, 233), it may be considered established that hydrochloric acid is always absent or much diminished in cancer of the stomach, as far as shown by the ordinary methyl-violet and similar tests. Our own experience, though comparatively limited, is entirely in accord with that of Riegel.

Considerable importance was at first attached to the dilatation of the stomach; since long-continued fermentative dyspepsia, with vomiting of considerable quantities of food after eating, pain, constipation, and anæmia with emaciation, which have been noticed in other cases of gastrectasia, were present here. As is well known, anæmia and extreme emaciation attend severe cases of dilated stomach, and Riegel has shown (*loc. cit.*) that hydrochloric acid is constantly present when the dilatation is not produced by cancer. Lactic acid is also usually found in large quantities, and its absence in this investigation is accounted for by the course of treatment through which the patient had been passing before the chemical examination was made. But the physical signs of dilatation had rapidly passed away; there was found to be no retardation of digestion, and vomiting occurred but very seldom. The cause of the continued progressive anæmia and emaciation came then to be regarded as due to a latent, but developing tuberculosis. This hypothesis had, indeed, repeatedly suggested itself, but been rejected because there were neither physical signs, cough, nor fever. It is well understood that anæmia with emaciation is sometimes one of the earliest signs of phthisis; and that cough is often absent needs no remark; but our experience would show that it is most exceptional for fever to be persistently wanting when tuberculous disease is progressing. Rühle says, in his elaborate article on consumption (*Ziemssen's Handb. d. spec. Path. u. Therap.*, 2 Aufl. B. v. ii.), that fever is the principal cause of the loss of weight in the disease; and that although the temperature curve may be most variable, yet "there is no phthisis without fever." He admits that for weeks or months the temperature may be afebrile, but states that in these cases we have to do with a cirrhosis and contraction of the lung, which produces no decomposed cellular matter. It is by the absorption of this matter that the rise in temperature is principally brought about. Flint (*Pepper's System of Medicine*, 1st edition, iii.) writes that absence of fever indicates arrest of the disease. If, then, tuberculosis was in reality the active agent in the case reported here, we had to deal with the remarkable fact that the disease had apparently been steadily pro-

gressing—as shown by the increasing anæmia and emaciation—yet had remained for two months totally afebrile. In spite of this difficulty, this diagnosis was finally adopted, even before the slight muco-purulent expectoration, friction sounds, and rise of temperature appeared. When this took place another careful examination of the chest was made, but the result, though suspicious, was not conclusive, especially if it be borne in mind that the slight physical alterations were on the right side. It is at this point that the value of bacteriological investigations is so strikingly shown; for the sputum of our patient now revealed myriads of tubercle bacilli, thus rendering a doubtful diagnosis certain. While the presence of bacilli in any case is diagnostic of tuberculosis, it is equally true that their absence is a sign of the absence of the disease. But to determine positively that the sputum is free from them, oft-repeated examinations must be made, since a few scattered bacilli may easily escape observation. A valuable method is that of Biedert (*Berlin. klin. Wochenschr.*, 1886, 713), in which about f5ss of sputum is boiled with water and soda until it becomes nearly homogeneous. The sediment collected in a conical glass will contain all the bacilli, and can be readily examined. The question may be raised, Did not the patient contract tuberculosis within the hospital, at the time when pleurisy with rise of temperature made its appearance? Although this view would dispel the difficulties regarding the previously afebrile temperature, there are several reasons why it cannot be adopted. The purulent expectoration appeared somewhat before the rise of temperature and pleurisy developed; and this pleurisy, being undoubtedly tubercular, was almost certainly secondary to a disease of the lungs already existing, since primary tubercular pleurisy is quite unusual. Then it is inconceivable that such myriads of bacilli could have been produced and set free by the breaking down of a lung which had been attacked by tuberculosis but a week before. The physical signs, too, though slight, indicated a process of longer standing than seven days; and both the clinical history and the autopsy fail utterly to account for the emaciation and anæmia, unless the previous existence of tuberculosis be admitted as the cause.

How now do the revelations of the autopsy bear upon the study of the case? It is unfortunate that, after the existence of gastric cancer had been negatived as above stated, more attention was not bestowed upon the pyloric thickening, which undoubtedly had existed, although all symptoms of pyloric obstruction had passed away. It might have been that more careful study of this condition would have raised the question of duodenal lesions, which are occasionally associated with pyloric changes. In this case we have seen that at the autopsy the stomach presented a peculiar sacculated form, undoubtedly due to post-mortem contraction and rigidity, such as affects the skeletal as well as the vis-

ceral muscles. For unquestionably at an early stage of the case there had been marked gastrectasia, which apparently must be explained by the narrowing of the pyloric ring. The hypertrophied muscular wall was evident proof, too, of compensatory effort on the part of the viscus. The gastric condition is worthy of note, because it indicates that the lesion in the duodenum was of long standing, and probably antedated the pulmonary tuberculosis.

Interest attaches to the case as illustrating the remarkable difficulty which arises in the diagnosis of duodenal ulcer. This lesion occurs with comparative rarity. Osler has found it but 9 times in about 1000 autopsies (*Canada Medical and Surgical Journal*, March, 1887). It is generally solitary, and situated not far from the pyloric ring. Its cause is usually embolism, as in gastric ulcer. The presence of tubercular ulcers in the ilium and jejunum suggested the possibility that the solitary duodenal ulcer was also of that nature. There were, however, neither macroscopical nor microscopical evidences of tubercle either in the ulcer or surrounding it. The symptoms of duodenal ulcer are extremely variable and rarely sufficiently distinctive to render the diagnosis certain. In many instances the process is entirely latent. Pain was present in only four of the nine cases which Osler reports (*loc. cit.*). Pusinelli (*Berlin. klin. Wochensch.*, May, 1887, 314) publishes an interesting case of *pyopneumothorax subphrenicus* caused by the perforation of a duodenal ulcer which had existed for some time totally without symptoms. In our previous cases the symptoms were extremely misleading, and in one case especially they simulated those of gastric ulcer so closely that the true seat of lesion was demonstrated only at the autopsy, after death had occurred from acute peritonitis following perforation. On the other hand, Bocquoy (*Arch. Gén. de Méd.*, April, May, June, 1887) claims that the diagnosis in 4 of his 5 cases was incontestable. It must be said, however, that all of these suffered from intestinal hemorrhage, and that none of them were verified by autopsy.

The gastric symptoms in the case here reported may, it is true, have been due to the presence of the ulcer; but there had existed during life greater reason to attribute them to fermentative dyspepsia, and their relief by treatment seemed to prove that this was really the case. The presence of duodenal ulcer only appears very probable when attacks of gastralgia and tenderness in the epigastrium are combined with intestinal hemorrhage. As regards the ulcers in the jejunum and ilium already referred to, there was no indication whatever of their presence during life, and it is impossible to determine whether they antedated the pulmonary tuberculosis, or whether, as is usually the case, they were secondary to it.

TUBERCLE OF THE TESTIS.¹

BY R. W. TAYLOR, M.D.,

SURGEON TO CHARITY HOSPITAL, NEW YORK.

THE present paper is intended as a contribution to our knowledge of tuberculous of the genito-urinary organs. Though much has been written upon surgical tuberculosis in this country, and though much good work in an operative way has been done in the field of genito-urinary tuberculous, nothing of importance has been published as to the histology of these affections as seen in the light of modern research, clinical and microscopical. Indeed, there is a distinct void in English and American medical literature as regards these affections. To fill this in a measure, I have availed myself of the able assistance of Dr. Ira Van Gieson, one of the curators of Charity Hospital and here present the macroscopic and microscopic appearances found in four testes removed from two patients who are under my care. It fortunately happens that in these testes the course of the disease can be very clearly studied step by step. In these two cases, the interesting and not very unusual clinical fact is presented of the tuberculous process beginning spontaneously in the epididymis and involving the testis proper, and in marked contrast with what is so frequently the case, namely, the development of tuberculosis in an epididymis or testis the seat of previous traumatic or gonorrhœal inflammation.

CASE I.—J. R., aged forty-two, American, bachelor, was admitted to Charity Hospital, Dec. 28, 1886. The family history on his father's side is excellent, but that of his mother is bad, since she, together with three brothers and three sisters, died of phthisis prior to the fortieth year. The patient says that he had pains in his chest and shoulder-blades, together with much expectoration, fifteen years ago; that six years ago he had a hemorrhage, and that four years ago he was told by a physician that he had phthisis. He has never suffered from any venereal disease.

In September, 1886, he fell from a high elevation, but experienced no injury to his testes known to him. Shortly after this his left testis began to be very painful and to swell. The enlargement went steadily on, accompanied by pain. The right testis became swollen and painful about Christmas, 1886, and on admission it was found to be larger than the left. Three weeks later an abscess was found in the left testis, which was by my direction opened by my house surgeon Dr. Bosc. About a fortnight later an abscess opened spontaneously in the right testis. The very weak and anæmic condition of the man, though the discharge of pus from the testis was great, led me to defer operation until he had been built up by extra diet and tonics. On the 23d of

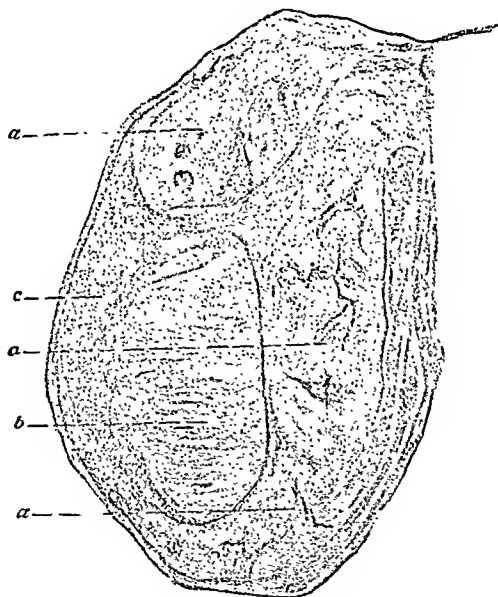
¹ Read before the American Association of Genito-Urinary Surgeons, at the first annual meeting, at Lakewood, N. J., 1887.

February, I removed both testes under strict antisepsis, using a bone drainage tube. Healing was perfect at the end of a week. Before the operation the patient expectorated a great deal, but since, he has gradually improved in this respect, his general health is much better and he has gained considerably in weight. In the sputum of this patient the tubercle bacillus was found.

Gross appearances. 1. *Left organ.* The epididymis is enlarged, its average diameter $1\frac{1}{2}$ cm., the testicle and epididymis together measure $6\frac{1}{2}$ by $4\frac{1}{2}$ cm. in diameter. The epididymis is honeycombed with larger and smaller yellowish semi-fluid areas. The outer surface of the albuginea is smooth. The mediastinum testis is thickened, sending out several short yellowish radiating streaks into the testis. Scattered over the cut surface of the testis—from four to six to a square centimetre—are small white opaque nodules, varying in size from a pin's point to a pin's head.

The right organ is slightly larger than the left, the epididymis is about the same size and similar in appearance. The testis contains an ellipsoidal cheesy mass, 2 by 3 cm. in diameter involving the mediastinum and adjacent testicle tissue (Fig. 1), so that there is left uninvolved a narrow crescentic area of the testis, containing small white nodules of the same character and distribution as in the other testis.

FIG. 1.



Right testicle of Case I. a. Swollen, purulent, and tubercular epididymis. b. Cheesy tubercular mass, involving the corpus Highmori and adjacent testicle tissue. c. Crescentic area of testicle tissue containing larger and smaller whitish opaque spots.

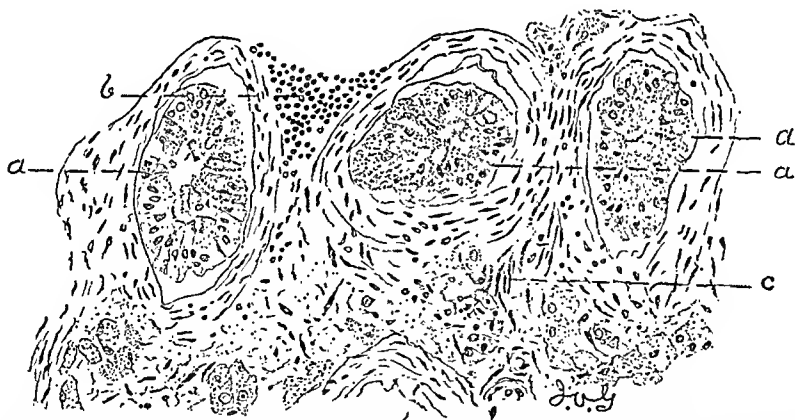
Microscopical examination. 1. *Left organ.* In the epididymis there are: 1, circumscribed collections of pus cells; 2, extensive areas of vascular small round-celled tissue resembling granulation tissue, with extravasations of blood; 3, diffuse tubercle tissue, not morphologically distinct from the tissue resembling granulation tissue, but identified as

tubercular by the presence of tubercle bacilli; 4, a very few well-defined tubercle granula, composed of one or more central giant cells with a surrounding zone of small round cells; these tubercles are isolated and scattered about in the interstitial tissue and in the tissue resembling granulation tissue; 5, groups of normal seminal tubules; 6, seminal tubules in various stages of degeneration.

In some of these degenerated tubules, the wall is infiltrated with small round cells, its outline is indistinct, and it merges into the surrounding tissue. The lumen frequently contains one or more multinuclear masses, apparently derived from the preëxisting epithelium, and in addition it sometimes contains small round cells and pus cells. The lumen is occasionally crowded with pus cells alone. The walls of other tubules and the small round cells infiltrating them have degenerated, so that the multinuclear mass in the lumen is surrounded by a granular zone containing few and fragmentary nuclei. In this way some of the degenerated tubules in section, resemble some forms of tubercle granula so closely that it is difficult to decide morphologically whether the appearances are due to a simple degeneration of the tubules or to tubercle granula. Portions of these degenerated tubules, which in section look like tubercle granula, may be termed pseudo-tubercle granula, for intermediate stages are present between the normal tubules and these degenerated tubules which simulate tubercle granula.

In the *testicle* there are: 1, tubercle granula; 2, an increased amount of interstitial tissue; 3, changes in the walls of the tubules and in the parenchyma; 4, grayish-white globular bodies of varying structure from one to two millimetres in diameter.

FIG. 2.



Chronic diffuse orchitis, associated with tuberculosis of the testicle. *a.* Seminal tubules with thickened walls and granular nucleated masses in the lumina. *b.* Cluster of small round cells infiltrating the interstitial tissue. *c.* New interstitial tissue between the tubules.

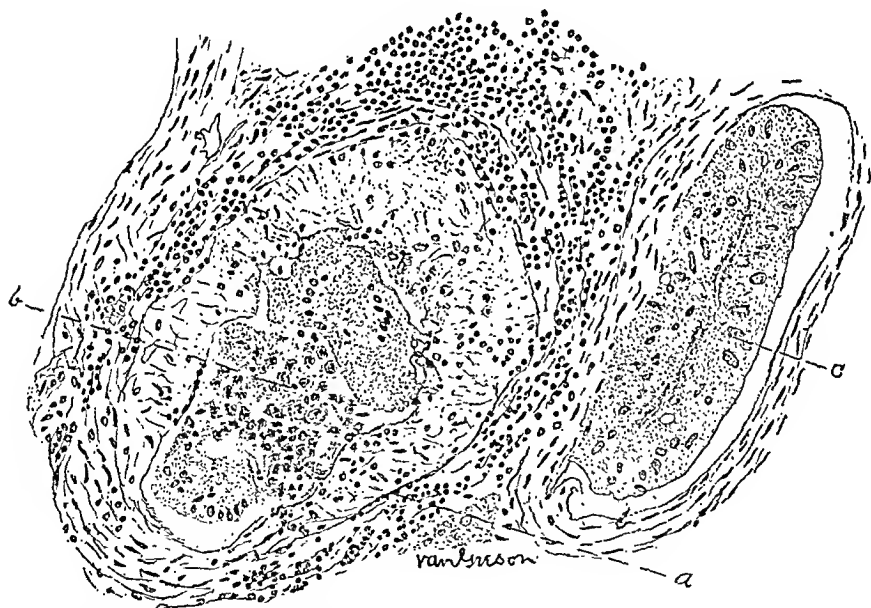
1. The tubercle granula are very few in number and are composed of one or more central giant cells surrounded by a zone of small round cells. A cheesy zone often lies between the giant cell and the small round-celled zone. Some are situated within the tubules, others in the interstitial tissue.

2. The interstitial tissue is loose in texture and composed of a finely reticulated basement substance containing fusiform and branching cells

and groups of large rounded cells with granular bodies. There are numerous clusters of small round cells scattered throughout the interstitial tissue (Fig. 2). Some of these clusters may possibly be commencing tubercle granula: others are perhaps phases in the development of the new interstitial tissue.

3. The walls of the tubules are thickened and their nuclei increased in number. The membrana propria is frequently separated from the remaining layers and the intervening space occupied by a transparent homogeneous mass, so that the wall frequently presents two zones, an inner structureless, and an outer nucleated lamellated zone. The membrana propria is often thrown into folds. The lumen of the tubules is occupied by a granular mass containing many nuclei, apparently formed by the desquamation and confluence of the cells lining the tubules (Figs. 2 and 3, c). This granular mass extends for some distance along the tubule and fills up the lumen as a plug. There is a space between this intratubular mass and the wall, and in the mass are a number of larger and smaller irregular cavities. These cavities at the central part of the mass are frequently larger and take the shape of long cracks and radiating fissures (Fig. 2). These spaces and cavities are perhaps due to the shrinking effect of the hardening agent. The majority of the intratubular masses have a peripheral

FIG. 3.



Showing the formation of a pseudo-tubercle granulum in chronic diffuse orchitis, associated with tubercular orchitis. *a*. Wall of seminal tubules, with an outer zone infiltrated with small round cells, and an inner granular zone. *b*. Contents of the lumen, consisting of a giant cell, granular detritus, free cells and nuclei. *c*. Adjacent tubule, with its thickened wall and intra-tubular granular mass of desquamated epithelium.

distribution of their nuclei, and transverse sections of many of them look like giant cells. Some of the tubules are filled with red blood cells. The diameter of some of the tubules is increased, due partly to

a thickening of the wall, and partly to a dilatation of the lumen. The outer zone of the wall is thickly infiltrated with small round cells (Fig. 3); the inner zone is coarsely granular and contains a few scattered nuclei. The lumen contains usually one or more large multinuclear masses resembling giant cells, also granular detritus, free cells and nuclei. The contents of the lumen seem to be formed by the disintegration of the intratubular mass, which in the majority of the other tubules fills up the lumen as a solid plug. Many of the dilated tubules with the small round-celled infiltration of the wall, and the fragmentary contents of the lumen, resemble very closely some forms of tubercle granula, but as these changes in the tubule seem to be dependent on simple inflammatory and degenerative processes, the nodules which these tubules present on section may be called pseudo-tubercle granula. These pseudo-tubercle granula in the testis are produced by the chronic diffuse orchitis (Fig. 3). They are generally isolated.

4. Some of the grayish white globular bodies are composed of amorphous material in which the outlines of one or more seminal tubules may be faintly seen. Others have a still less distinctive outline and it is difficult to decide how they originate.

The smallest of the minute white spots, noted in the description of the gross appearances, were occasioned by tubercle granula, or by the larger clusters of small round cells infiltrating the interstitial tissue, or by pseudo-tubercle granula. The larger spots were due to the grayish-white globular bodies. The walls of some of the bloodvessels were thickened. The vas deferens was normal.

2. *Right organ.* The microscopic appearances did not differ materially from those in the left organ. The large cheesy mass (Fig. 1) was composed of confluent miliary tubercles and cheesy areas.

CASE II.—An American, merchant, married, aged thirty-three and one-half years, a thin, pale cadaverous-looking man, was brought to me in the latter part of August by his brother, a prominent practitioner of New York. His family history showed that a brother died when eighteen months old of tubercular meningitis, and that two paternal aunts at the age of eighteen and fifty-five, and a maternal grandfather at the age of forty-seven, died of phthisis. The patient has never enjoyed good health, having suffered more or less from nasal catarrh, functional disease of the heart, and indigestion. He is a man of correct habits, and has never been exposed to venereal disease, never having had intercourse with any woman except his wife. When he was two and one-half months old he had tubercular meningitis, which lasted two months. He has, since a child, suffered from left inguinal hernia.

In the early part of November, 1885, the patient noticed a slight swelling on the left side on the head of the epididymis, which he thought was a part of his hernia. This swelling was accompanied by a slight watery discharge from the urethra. Though various external and internal remedies were used, the swelling increased until it involved the whole testis, which in February, 1886, was twice its normal size and accompanied by a large hydrocele. In April, an opening formed near the tail of the epididymis, discharging considerable pus. A large abscess also formed over the right biceps muscle. About August, the right testicle began to swell, and in November, an abscess seated on it opened spontaneously.

In October, 1886, the patient consulted me, and I advised the prompt removal of both testes. This was emphatically declined by the patient. From the date of the October, 1886, consultation until the spring of 1887, I heard at intervals, through the brother of the patient, that he was in wretched health, that the testes were larger and still discharging profusely, but that he obstinately refused to undergo an operation. Early in April, however, he realized the fact that he was steadily growing worse, and that the lesions of the testes were progressively becoming worse, and he gave his consent to the operation.

On the 7th of April, with the assistance of Dr. C. W. Cutler, Dr. R. H. Greene, Dr. J. A. Bosh, and Dr. W. C. Gilley, my hospital assistants, I removed both testes under full antisepsis, as in Case No. 1. The healing of the wound was rather slow, but unattended by pus formation. Some weeks before a large abscess had formed in the hypogastric region, and after much persuasion was opened, giving vent to a large quantity of pus. The healing of this pus-secreting cavity was much retarded by the obstinate refusal of the patient to allow it to be properly treated by drainage, irrigation, etc.

No bacilli were found in the sputum of this patient.

Gross Appearances. 1. *Left Organ.*—The epididymis is enlarged, its average diameter 1 cm. The testicle and epididymis together measure 6 by 4½ cm. in diameter. The epididymis is cheesy, and has at its summit a small elongated cyst containing clear fluid. The mediastinum is thickened, and its upper part contains a nodule the size of a pea, with a cheesy centre. A few minute white spots are scattered over the cut surface of the testicle.

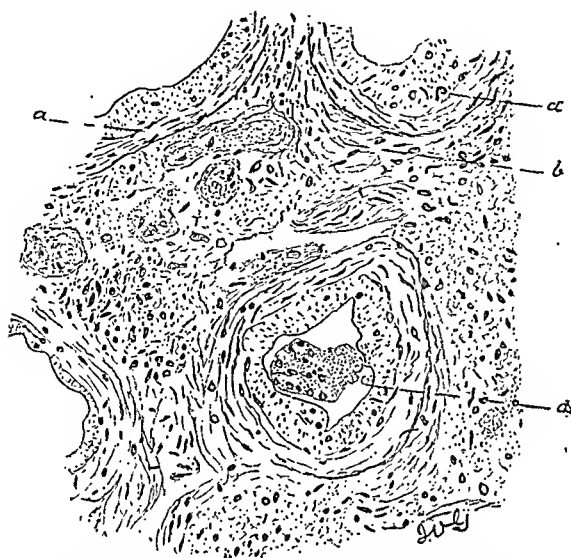
2. *Right Organ.*—The epididymis is enlarged, its average diameter 1½ cm. The testicle and epididymis together measure 6½ by 5½ cm. in diameter. The epididymis is soft and cheesy. A mass of confluent nodules occupies the mediastinum and about one-third of the testicle. The remainder of the testis contains larger and smaller nodules with intervening testicle tissue. The surface of the albuginea is nodular.

Microscopical Examination. 1. *Left Organ.*—The *epididymis* contains tissue resembling granulation tissue and cheesy areas. In the *testicle* there are diffuse changes in the stroma and parenchyma similar to those in the testicle of the preceding case, but less marked. The interstitial tissue is moderately increased, the walls of the tubules are but slightly thickened and the outlines of the desquamated cells in the lumen are often still distinct. In the sections pseudo-tubercle granula are absent. Tubercle granula seem to be present only at the mediastinum. The vas deferens has a cheesy centre.

2. *Right Organ.*—The *epididymis* is similar in structure to the left epididymis. In the *testicle* there are larger and smaller tubercles generally associated with fibrous tissue and cheesy degeneration. The changes in the interstitial tissue, in the tube walls and in the parenchyma are more extensive than in the preceding testicles. The interstitial tissue is voluminous and approaches the character of dense fibrillar connective tissue (Fig. 4). The walls of the tubules are greatly thickened, frequently showing two zones. A shrunken, coarsely granular mass with few nuclei occupies the lumen. In places the lumen is nearly obliterated by the thickened walls. The vas deferens has a cheesy centre.

Tubercular orchitis may occur in connection with acute general miliary tuberculosis, or with chronic miliary tuberculosis in other organs. It may also occur in conjunction with tuberculosis of the genito-urinary tract, or it may be localized in the testis or epididymis.

FIG. 4.



Chronic diffuse orchitis, associated with tubercular orchitis. *a*, Thickened walls of the seminiferous tubules, showing two zones—one of the tubules contains a shrunken granular nucleated mass in the lumen. *b*, New fibrillar connective tissue between and around the tubules.

Tubercular orchitis and epididymitis are frequently so intimately associated with different inflammatory and degenerative changes, that it is often difficult in parts of the organ to interpret the appearances. Thus in both of the organs in Case I., in addition to the tubercular process and the acute suppurative inflammation in the epididymis, there was a diffuse orchitis and a degeneration of the tubules in the epididymis—each accompanied with the production of pseudo-tubercle granula—which were much more prominent features than the tubercular process. These cases illustrate three phases of diffuse orchitis; the left testicle in Case II. an earlier, both testicles in Case I. a later, and the right testicle in Case II. a still later stage. Arnold describes pseudo-tubercular bodies occurring in the liver and kidney in conjunction with tuberculosis of these organs. In tuberculosis of the liver pseudo-tubercular bodies may be formed by changes in the walls of the gall-ducts, accompanied by a desquamation and confluence of their lining epithelium. Sections of the masses of confluent epithelial cells of such gall-ducts resemble giant cells. In tubercular nephritis pseudo-tubercular bodies may be produced by similar changes in the epithelium and walls of the uriniferous tubules.

The causal relations between the diffuse orchitis and the tubercular process do not seem to be definitely ascertained.

Gaule¹ applied the terms spermataphoritis to the changes in the parenchyma, and perispermaphoritis to the changes in the tube walls and stroma of the testis, and believed that both of these lesions were due to the extension of an inflammatory process along the tubules from the epididymis to the testis.

Waldstein² observed changes in the parenchyma of the testis with an unappreciable lesion of the interstitial tissue; and marked interstitial changes with slight parenchymatous alterations, and believed that the lesion in the parenchyma was not dependent on the interstitial changes, but due to alterations in the tubuli recti, caused by new growths of connective tissue in the corpus Highmori. This hypothesis would explain the not infrequent regional involvement of the testis by the diffuse orchitis. In the cases of tubercular orchitis examined by Gaule and Waldstein, the diffuse orchitis was present in the majority.

Reclus³ describes cases of tubercular orchitis in which suppurative inflammation is a prominent lesion.

40 W. TWENTY-FIRST STREET, NEW YORK.

¹ Anat. Untersuchungen über Hodentuberculose (Plithisis testis), Virchow's Archiv, vol. lxi., pages 64 and 213.

² Zur Kenntniss der tuberculösen Erkrankungen des Hodens. Ibid., vol. lxxxv.

³ Du Tubercle des Testicule et de l'orchite tuberculeuse. Paris, 1876.

REVIEWS.

NERVOUS DISEASES AND THEIR DIAGNOSIS. A TREATISE UPON THE PHENOMENA PRODUCED BY DISEASES OF THE NERVOUS SYSTEM, WITH SPECIAL REFERENCE TO THEIR CAUSES. By H. C. Wood, M.D., LL.D., Member of the National Academy of Science. 8vo. pp. 501. Philadelphia: J. B. Lippincott Co.

THE American profession has cause for congratulation at this new and important addition to its literature, and Dr. Wood has reason to feel proud of a work which is far in advance of the many treatises on nervous diseases which have appeared in the last few years. There can be no better evidence of the growing importance of neurology as a distinct branch of medical study than the appearance of a work like the one under consideration, devoted solely to the diagnosis of diseases of the nervous system.

Dr. Wood does not waste much time or space with an introduction, in which he tells us at once that in studying a disease he will adopt the plan of going "from the symptoms back to the lesion, and not from the lesion to the symptoms." This has been found, in the author's experience, to be the best clinical method of studying brain and spinal diseases, and this course of investigation is followed throughout the work. The introduction is principally taken up with the consideration of neurasthenia, or nervous weakness, because "the symptoms of this state are so indefinite and fugitive, that it is almost impossible to marshal them into order." Dr. Wood even insinuates that much time has been wasted in attempting to make neurasthenia a disease. However, though it may have no definite pathology, cases of this affection are increasing in number every day, and if some conclusion could be reached as to the locus morbi, a decided progress might be made in the treatment. Dr. Wood defines neurasthenia to be "a bodily condition which is frequently associated with various chronic disorders, and not rarely coexists with perverted functional activity of the nervous centres, which perverted nerve-functions, may, however, exist independently of any perceptible neurasthenia, and are not simply the outcomes of the neurasthenia."

In describing melancholia, Dr. Wood says, "The connection between the depressed emotions and the health of the abdominal organs is too well known to need comment." The same thing can be said in regard to neurasthenia, which is so closely allied to mild melancholia, that, for convenience of classification, it could be placed in Dr. Wood's division of "Disturbance of Intellection." However, it must be admitted that nervous depression, or neurasthenia, is itself easily diagnosed, though its origin, or the cause for its continuance, is, as yet, a very unsettled question. Hence, until some definite conclusion is reached, this prevalent and very perplexing disease can find but small consideration in a

manual for diagnosis. The classification of diseases in this volume is entirely on a clinical basis. The chapter on "Paralysis" includes all forms of loss of motion, cerebral, spinal, or local, and thus the system of studying from the symptoms to the lesion is carried out.

The treatment of this important division of the work is full and interesting, and will, no doubt, make the diagnosis of these somewhat obscure diseases an easier task for the young specialist or the general practitioner. A more detailed account, however, might have been given of multiple neuritis, since this comparatively new disease has attracted lately so much attention. The persistence of the so-called "anæsthesia dolorosa," even after the paralysis has disappeared, is of curious pathological significance, and it is singular that the sensory nerves should be so much more deeply implicated in a morbid process in which motor paralysis is the chief symptom.

"Motor Excitements," "Reflexes," "Disturbances of Equilibration," "Trophic Lesions," and "Sensory Paralysis," constitute the next five chapters of the work, and it will be seen from the topics discussed, under these heads, that diseases are classed by their symptoms rather than by the lesions producing them, and thus for clinical work and study the book is rendered very valuable. In the following chapter on "Exaltations of Sensibility," the subject of pain, including the important divisions of headache and neuralgia, is considered, if not in proportion to its clinical demands, yet probably as fully as the scope of the work would justify.

In discussing migraine Dr. Wood is satisfied with the following explanation of its pathology: "There have been a number of theories brought forward as explanatory of the attack of migraine; as these theories still remain theories, it is beyond the province of the present work to discuss them, clinical experience showing that migraine is in some way related to gout; secondly, that in the great majority of cases it is an inherited disorder, which has close relations with other serious neurotic ailments."

The next chapters include the study of "Disturbances of the Special Senses," "Disorders of Memory and Consciousness," and bring us to the concluding section on "Disturbances of Intellection," which is the most important chapter of the work.

It is but fair to Dr. Wood to detail in a review of his book the classification which his study has led him to adopt, for it makes this volume one of great value as a book of reference, and by avoiding a useless and ponderous nomenclature brings the whole subject more within the reach of the general profession.

It is a matter of special significance that this latest work on nervous diseases should give the study of insanity a decided and prominent place in its pages. Neurology can never attain its true dignity until its most important branch is more fully and generally recognized, and when this truth becomes gradually more impressed on the profession the study of insanity will become an active clinical pursuit, and better, and more available hospitals will be provided for the treatment of the insane.

J. V. B.

LA GOUTTE, LA NATURE ET SON TRAITEMENT. Par DR. W. EBSTEIN, Professeur de Médecine et Directeur de la Clinique Médicale, de l'Université de Göttingen. TRADUCTION du DR. E. CHAMBARD, Ancien Interne des Hôpitaux de Paris; INTRODUCTION du PROFESSEUR CHARCOT, Membre de l'Institut. Ouvrage orné de 12 chromo-lithographies. Paper, 8vo. pp. xii., 194. Paris: J. Rothschild, 1887.

THE typography, paper, illustrations, and general appearance of the French edition of Ebstein's well-known monograph are a credit to the publisher, and a source of pleasure to the reader. There is no more reason that scientific works should not gratify that sense of beauty which the student possesses in common with his fellowmen, than that the devil should have all the good music; but it is not often that a medical book, at least, is issued in the style of the one under review.

Charcot's introduction, which does not fill two pages, is simply a commendatory notice of author and translator, and a regret that the former has not been able to profit by Bouchard's recent lectures. The work is an elaborate and systematic study, divided into five books: The first devoted to an historical review; the second, to pathological anatomy; the third, to spontaneous and experimental gout in animals; the fourth, to the action of uric acid, its compounds, and analogues upon animal tissues and organs; the fifth, to human gout from a clinical standpoint.

The author considers the first step in the gouty lesion to be a process of necrosis occurring in fibrous tissues and cartilage from the poisonous action of soluble urates (neutral urate of soda), circulating in the blood in consequence of nutritive disturbances. At the points of necrosis crystallization of insoluble (acid) urates occurs, and the typical gouty deposit is formed. It is strenuously insisted upon again and again that "necrotising and necrotic foci" are primary, and "uratic deposits" secondary. While the production of uric acid is recognized as an error of nutrition, inherited predisposition is regarded as the principal factor; a slight departure from strict regimen may awaken the active disease in a predisposed subject, while great excess in another will not produce gout.

Instances of congenital pyroecatechinuria and cystinuria are adduced in support of the position that anomalies of excretive functions need not necessarily be due to errors of life. The muscles and the marrow of bones are looked upon as seats of uric acid formation. Localization of gouty processes is explained by the favorable conditions for the separation of uric acid from the nutritive fluids in the articulations, on account of sluggish circulation; these conditions being heightened at the extremities.

Of the two divisions, primary articular gout and primary renal gout, the former is considered by far the more common; the kidneys being affected late in the disease, or not at all. Secondary kidney affection is recognized as a cause of generalized uric acid stasis. Primary renal gout, more rare, is likewise more dangerous. It may run its course as a nephritis without articular complication to show its gouty nature. The diagnosis may be considered established if gouty manifestations occur late in the course of a pronounced nephritis.

The questions of the relations between saturnine intoxication and

gout, and the possibility of nephritis as an intermediate state, are discussed but left undetermined. In this connection may be cited a remarkable case seen by the reviewer in the medical out-patient department of Jefferson Medical College Hospital, during the service of Prof. Bartholow, which exhibited in an anæmic poorly nourished painter of congenitally low type, enormous gouty concretions of urate of sodium, in most of the finger- and toe-joints, conjoined with a far advanced parenchymatous nephritis: an autopsy could not be obtained, but the history seemed to point to coincident development of articular and kidney disease.

To base the therapeutics of gout upon a proper apprehension of its exciting causes; Dr. Ebstein thinks it wise to study the history of generations and even entire races. We have to contend not with mere retention, but overproduction of uric acid. Strict regimen is necessary from the first, for all who inherit the gouty diathesis; for the non-appearance of typical attacks does not guarantee the annihilation of the tendency, which may manifest itself insidiously and obscurely. Obesity in a threatened individual must arouse the physician's watchfulness. The treatment of the obesity is an essential element in the treatment of gout. Diet should consist of enough albuminous matter, not only to conserve the provision of albumin in the organism, but to augment it—say 8 to 9 ounces of roast or boiled meat daily. Fatty food is not prohibited, but a sufficient quantity to aid nutrition is considered the best measure against obesity. As to character, the taste of the patient is to be consulted. The quantity should not exceed in general 2 to 4 ounces daily. Other hydrocarbons are to be avoided as much as possible; 3 to 4 ounces of bread constitute the extreme limit. Pared fruits and leguminous vegetables are permitted in reasonable amount. Turnips and similar vegetables are interdicted in most cases. Further than this, Sydenham's advice as to regime is followed. Absolute avoidance of beer is recommended. The use of wine is interdicted to the good liver, but not absolutely, if too much importance be attached to it, for the sake of securing obedience in other respects. Unless an attack supervenes, one or two glasses of light natural wine are permitted daily. The rather liberal use of water, as a broom to sweep out noxious materials, is recommended; especially natural Seltzer water, but not more than one bottle daily. Large quantities of alkalis are not advised, because the gouty tendencies are not susceptible of complete cure.

Certain palliatives, simple and harmless, are endorsed by experience; among them fruits, especially apples, containing vegetable acids combined with alkaline bases. Medication in general is avoided in the absence of special indications. Mineral waters are to be used, but not abused.

Regular exercise plays an important part in the prevention of gout; and when active exercise is not practicable, passive exercise—*i. e.*, frictions, massage, etc.—must be instituted. Journeys to the Alps of Switzerland and the Tyrol are of advantage. The claims of various spas and springs are considered carefully. Individual circumstances must modify balneotherapy. For the access of gout, the elevated position and regulation of diet are instinctively employed by the patient. As to medication, Ebstein places beside colchicum, the salicylates, especially the lithium salt. Colchicum must be prudently handled. Pain may be relieved by anodynes, especially morphine. The general indication is

to secure elimination of uric acid as rapidly as possible. Complications are to be treated appropriately. In primary renal gout, general principles must guide the physician. The diathesis is to be combated, and tonic measures occupy a front rank. S. S. C.

THE PRACTITIONER'S HANDBOOK OF TREATMENT; OR THE PRINCIPLES OF THERAPEUTICS. By J. MILNER FOTHERGILL, M.D., Physician to the City of London Hospital for Diseases of the Chest, etc. Third American from the Third English Edition. Svo. pp. 660. Philadelphia: Lea Brothers & Co., 1887.

No one can read this work without experiencing a feeling of pleasure, and if Dr. Fothergill contributed nothing else than his peculiarly fascinating style, the medical profession would still remain a debtor to him. But he does more than this. The character and scope of this work stamp him as a teacher in a sphere of medicine which is but little trod by other medical writers. In it he goes into the hidden nooks and by-ways of the therapeutic art, and discusses points which are of daily value to the student of medicine, but which are nowhere brought out so well and so practically as they are by him. It is as the author informs us in the preface, an effort "to analyze and elucidate the *modus operandi* of the measures in common use, and is a work on medical tactics for the bedside rather than the examination table."

Evidently Dr. Fothergill's strength lies principally in the direction of revivifying the practical points in medicine, but we think it is about time that the profession demands of those who write their text-books to give a clearer view of the pathology of many important diseases than has been their custom. We especially refer to the pathology of pulmonary consumption. There is no subject, perhaps, upon which authors are, as a rule, more conflicting in their statements than they are in their definition of tubercle. Dr. Fothergill is particularly loose in the language which he employs in describing its structure. He starts out (page 194) by condemning Laennec for teaching "that tubercle was a special growth," and then states that "tubercle is modified connective tissue—nothing more or less." This, according to the latest pathological researches is strictly true, and Dr. Fothergill would have done well had he stopped here; but in a few pages further on (page 197) he contradicts his previous definition by stating that "We must start off by the understanding that tubercle is but a modification of ordinary inflammatory products, not a true neoplasm."

The great sin of most medical writers is this habit of classifying the products of connective tissue, and of ordinary catarrhal inflammation of the lung under the name of tubercle. It is true that so far as their form is concerned, which may be tubercular or nodular, they may be called tubercle, but our opposition to such a practice is based on the fact that there are no two other pathological products so diversified in genesis and in structure as these, and hence for the sake of clearness, if for nothing else, the term which is used to define one should not be used to define the other. The former is commonly called the gray, and the latter the

yellow tubercle, and it must be admitted that if these products were thus properly qualified they could be used with tolerable precision, but this they are not, and from present appearances there is no likelihood that they ever will be; and hence the implication, that they are one and the same structure, will never vanish from the literature of pulmonary consumption.

The latest works on pathology unquestionably show that the true gray tubercle is a neoplasm—a hyperplasia of connective tissue; that it is a specific structure; and that it begins and grows in the lymph-spaces and channels of the inter-alveolar, peribronchial, and perivascular lymphatic tissue; while, on the other hand, the yellow tubercle (so-called) is not a specific structure, but an intra-alveolar product which is principally composed of accumulated catarrhal cells. It has its beginning in the epithelial layer of the alveolar wall, does not grow, but acquires its size through accretion, and possesses no structure, and if the expulsion of the accumulated alveolar products would keep pace with the proliferation of the same, it would never have a tangible existence.

While on the subject of tuberculosis, we may as well draw attention to the fallacious rule which Dr. Fothergill lays down as a guide in sending consumptive patients away for climatic treatment. He is in full accord with the views of Dr. Fuller on this subject, whom he quotes as follows: "We must, in selecting a suitable climate, ascertain first, the sort of climate and the degree of temperature which formerly suited the patient's constitution, or, in other words, agreed best with him when he was in health."

It may be stated here, that, if all other things are equal, an individual as long as he is well, enjoys health most fully when he is surrounded by a climate in which he and his ancestors were born and reared. An adaptation, more or less complete, slowly takes place between the functions and structures of the body and the surrounding forces and conditions, such as heat, cold, light, air, humidity, etc.;—the influence of the latter forces producing a constant healthful stimulation. The truth of this assumption is fully verified by the fact that the emigration of a people to a strange and unaccustomed climate is frequently followed by pulmonary consumption.

If, however, an individual falls a victim to this disease on his native soil, the environment which previously acted as a healthful stimulus has now lost that influence, because the body in disease is generally less impressible to normal stimuli than it is in health. Under these circumstances a climate (without regard whether the patient, when well, felt best in summer or in winter) which is cold and bracing, the nature of which is probably diametrically opposed to the one in which he is accustomed to live, will work him the greatest benefit. Possibly the whole sum and substance of the climatic treatment of phthisis resolves itself into a question of making a powerful impression on the constitution of the patient by changing his surroundings—and this can only occur when the climate to which he goes is sufficiently antithetic to that from which he came. This view is in perfect accord with the fact that the best practical results are obtained by those physicians who send their patients to the cold elevated mountains, with air dry, pure, and more or less attenuated, and where they are compelled to take deep inspirations in order to satisfy the oxygen-want of their bodies. On the other hand, it is also true that consumptives who are accustomed to live in an elevated climate derive

most benefit when they sojourn in a suitable climate near the sea level. The truth remains, however, that the nature of the climate which is suitable for the individual in health would make a very poor guide in determining where to send him when he is suffering from pulmonary consumption.

From these and a few other exceptions which may be taken in regard to the scientific aspect of the volume, it may appear that it is only adapted to the wants of the practical physician. This would be a misconception of its true value. It is above the average standard of text-books on this subject, and we have only endeavored to point out instances which seem to us to be some of the weak spots in the composition of many of our modern text-books on practical medicine. It has already gone through two editions, and with the addition of a chapter on "The Dietary in Acute Disease and Malassimilation," and one on "The Management of Convalescence," this, the third edition, fully sustains the reputation which the book has created for itself. T. J. M.

PHOTOGRAPHIC ILLUSTRATIONS OF THE ANATOMY OF THE HUMAN EAR, TOGETHER WITH PATHOLOGICAL CONDITIONS OF THE DRUM MEMBRANE, AND DESCRIPTIVE TEXT. By B. ALEXANDER RANDALL, A.M., M.D., of Philadelphia, and HENRY LEE MORSE, B.A., M.D., of Boston. Philadelphia: P. Blakiston, Son & Co., 1887.

THIS portfolio of photographs contains twenty-five plates, upon which are, in all, seventy-five impressions, illustrative of the anatomy of the human ear, as set forth in the title. In plan it resembles the photographic atlas of Rüdinger (Munich, 1866-1875), parts of which have been edited by Dr. C. J. Blake, of Boston, and published in this country in 1874. In execution, variety, and number of plates, however, this far exceeds any atlas of its kind yet laid before students of the ear. In the composition of the work, the authors have availed themselves of access to the private collection of Dr. C. J. Blake, the private collections of Politzer, in Vienna, Dr. C. H. Burnett, in Philadelphia, and the Museum of the College of Physicians of Philadelphia, where they selected the best of the aural specimens among the preparations of the Politzer and Hyrtl collections which the College has possessed since 1876. Some of the results of their work the authors now present to the public, believing, very justly we think, that they are thus able to submit points of interest shown by no single collection. As the essential value of photography is in its accuracy, they have entirely abstained from retouching the negatives. Some "blocking out," however, has been done, in the interest of neatness and contrast.

"All of the photographs were taken by the authors themselves, under varying conditions as to light, etc., as many of the specimens could not be removed from the Museum, to which they belonged, and some of them had to be photographed through glass—conditions greatly increasing the difficulty of obtaining entirely satisfactory pictures."

Among the photographs of normal specimens, while all are excellent,

we would especially note No. 16, "Drum membrane, ossicles, etc., $\times 2$," viewed from within, and No. 17, "Infant's annulus tympanicus, drum membrane, malleus, and incus, $\times 4$," also viewed from within, as being extremely instructive as to the relations of the various parts of the middle ear to one another. Among the photographs of pathological specimens of the ear, we would specially note the instructiveness of No. 58, "Greatly indrawn membrana tympani, in profile, $\times 3$," and No. 59, "Cicatrix indrawn, and fast to promontory, $\times 3$." Among the "microscopical preparations," are to be noted specially No. 68, "Transverse section of Eustachian tube, $\times 16$," No. 71, "Malleo-incudal joint, $\times 18$," No. 74, "Single turn of cochlea of child, $\times 20$," and No. 75, "Corti's organ, $\times 120$." This latter is accompanied by an excellent ideal diagram of a transverse section through the modiolus and the scalæ, giving, of course, the relation of the various parts of the perceptive organ to one another.

We have examined this portfolio of photographs with genuine pleasure and much profit, and can heartily recommend it to all who wish to refresh their memory, or to study, for the first time, the highly important anatomy of the ear. As a means of demonstration to a class, these photographs cannot fail to take a high place as supplementing and enforcing the instruction given upon the natural specimens themselves.

C. H. B.

SYPHILIS. By JONATHAN HUTCHINSON, F.R.S., LL.D., Consulting Surgeon to the London Hospital and to the Royal London Ophthalmic Hospital; Vice-President of the Royal College of Surgeons. With eight chromo-lithographs. 16mo. pp. xii. 532. Philadelphia: Lea Brothers & Co.

THE publishers of this series of clinical manuals are to be congratulated upon having obtained one so admirably fitted as is Mr. Hutchinson to treat the subject of syphilis. An ardent student in many fields, and a prolific writer in them all, it is rarely the case that one at his time of life is willing to sit down and construct a special treatise. Yet, when one so fortified both by experience and study does write a book, it is all the more valuable from the weight of authority which properly attaches to it. In sitting down to read this book, therefore, the reader may do so with the confidence that he can place all the reliance in its views that can be given to any one man upon a subject in connection with which there are still many mooted points.

The arrangement of the volume is somewhat peculiar, it being divided into two parts. The first of these is systematic and didactic; the second consists of some two hundred and forty commentaries thereon, which include the history of many illustrative cases. By this plan, which we regard as very felicitous, the subject is gone over twice, and the dogmatic statements of the first part are enforced and elucidated by the second. Thus the practitioner who desires to examine into any particular point can turn to it in the first part, and readily find there, in a condensed form, the principles which he needs to aid him in making a diagnosis, and to guide him to appropriate treatment; and then at his

leisure he can inform himself as to the reasons upon which Mr. Hutchinson's views are based. Nor is it easy to fall into error as to our author's meaning. Every page gives evidence that it is from the pen of a practised writer, who has something to say, and says it in clear and unmistakable English. In these commentaries, too, a glimpse is obtained of the rich clinical experience Mr. Hutchinson has enjoyed, and of the careful and conscientious study by which he has utilized it.

Following the commentaries are several chapters dealing with important subjects still sub judice, and furnishing by no means the least valuable reading in the book. The first of these is on satellite sores, and with the prudence born of long observation, our author concludes that it is not wise, in the present state of our knowledge, to decide positively in those rare but important cases, in which a second sore makes its appearance during the course of a primary one, whether the inoculation takes place by lymph channels beneath the surface, or by the action of the virus upon the surface itself. Mr. Hutchinson has most frequently seen satellite sores when the original chancre has become acutely inflamed, and holds that they are essentially sores following a primary inoculation at a considerable interval of time, and owe their existence to something like pus-infection. They should be carefully distinguished from cases of multiple primary inoculation simultaneously appearing.

Chapter XVII. is devoted to the power possessed by syphilis of imitating other diseases. Mr. Hutchinson dwells upon the fact that there is hardly any disease, and more especially where the skin is involved, to which, under this peculiar modifying power, the term "syphilitic" cannot be sometimes added, but he cautions against being misled by this fact, into too resolutely holding to a diagnosis of syphilis based upon mere external characteristics. He shows that there are no evident peculiarities which will enable the surgeon to distinguish between some cases of simple rupia and those possessing a syphilitic element, and refers to cases of serpiginous ulceration of the throat, in which the diagnosis of syphilitic taint could not be maintained. The duration of the disorder, and the effect of treatment must, after all, be principally relied upon for information in many cases. This chapter is a most instructive and suggestive one on the imitative power of syphilis, and the limitations of it.

The delicate question of marriage after syphilis, is considered in the following chapter, and Mr. Hutchinson informs us that for twenty years past he has sanctioned the contracting of such engagements two years from the date of infection, when the patient has been thoroughly and successfully treated with mercurials. Perhaps no better hard and fast rule can be laid down. To extend the time as long as is done by some, is conducive to concubinage, and, therefore, does not tend to limit the spread of the disease, while preventing many marriages. Of course, where symptoms persist, or the chancre shows a tendency to recur, the rule does not hold good, but Mr. Hutchinson has never seen any reason to regret its adoption, and has met with ill consequences in but one doubtful case.

The remaining chapters are engaged with suggestions on the mode of investigating syphilitic cases and of recording their histories, with cautions concerning their diagnosis, the opinions of authors concerning the use of mercury, the diagnosis between cancer and syphilis, and on syphilitic affections of the throat.

The chromo-lithographs in the book are good, and an excellent index concludes a volume, which we, without hesitation, commend as a strong, thorough, and well-considered treatise upon a theme which must ever continue of vast importance to the practical surgeon, and which still includes problems of interest to be solved.

S. A.

A TREATISE ON DIPHTHERIA, HISTORICALLY AND PRACTICALLY CONSIDERED; INCLUDING CROUP, TRACHEOTOMY, AND INTUBATION. By A. SANNÉ, Docteur en Médecine, Ancien des hôpitaux de Paris. TRANSLATED, ANNOTATED, and the SURGICAL ANATOMY ADDED. By HENRY X. GILL, A.M., M.D., LL.D., late Professor of Operative and Clinical Surgery in the Medical Department of the University of Wooster, at Cleveland, O. 8vo. pp. xxxi., 656. St. Louis, Mo.: J. H. Chambers & Co., 1887.

THIS work of 656 pages deserves to be accepted as a standard by the teacher, the student, and the thoughtful practitioner. The author, who was a student of Barthéz and Trousséau, and, therefore, could not fail to be interested in the subject of diphtheria, has fully availed himself of his unusual opportunities for the study of that disease. The work is so comprehensive and each of its divisions so interesting that any attempt at a complete review would result in the writing of a treatise. But very few of the most important points can, therefore, be noticed.

The author holds, and we think rightly, that the morbid action in so-called membranous laryngitis (croup) and in pharyngeal diphtheria, are identical, "only its effects vary with the intensity of this same action and with the structure of the mucous membrane in which it is developed." Under the head of chemical characters of the diphtheritic membrane, the action upon it of various substances—the acids, mineral and organic, alkalies, alkaline salts, bromine, iodine, etc.—is considered, but nothing is said concerning that of pepsin, pancreatin, and trypsin. In passing, I may remark that extraordinary statements have been recently made concerning the solvent action upon diphtheritic membrane of a substance called papoid. Interesting statistics are given to show that tracheotomy is never the cause of thoracic complications. This is held to be proved by the fact that the greatest number of cases of bronchopneumonia and pneumonia are found at autopsies made on the first and second days after the operation, an interval supposed to be too short for the development of the lesions. This important subject demands further study. Dr. Sanné criticises the observations of Bouchut and Labadie Lagrave with reference to the frequency of diphtheritic endocarditis, and holds with Parrot that this complication is very rare.

The interesting statement is made that the author has not known a single case of diphtheritic albuminuria to become chronic. Another peculiarity of this form of albuminuria is that it is not accompanied with dropsy, as in scarlatina, and is explained by Sanné to be due to the fact that in diphtheria, as a rule, but one kidney is attacked, while, in scarlatina, as a rule, both are involved. In 224 cases of diphtheritic albuminuria he observed but 7 cases of dropsy.

The following statement is difficult to understand: "When paralysis becomes general we are often confronted by grave symptoms, such as excessive prostration, continual tossing," etc. Muscular prostration, in cases of general paralysis, is understood, *va sans dire*, to use the language of Sanné, but "*continual tossing*" is hard to conceive of under such circumstances.

The chapter on the nature of diphtheria contains much of interest. The author does not believe that the disease is, at the beginning, local and that the system is poisoned by absorption from the primary focus, but holds that it is an affection which is "*totius substantiæ*, primarily general."

The words "infection" and "infectious" are often used in this work to imply malignancy. For example, on p. 370, "its infectious nature is also proved by the gangrene, the adenitis, the albuminuria, and the paralysis." As the term is used in English such facts have nothing to do with proving infection.

The sections on treatment, medical and surgical, form a prominent feature of this work, but the want of space forbids more than the statement that they are unusually full and comprehensive.

In view of the fatal cases of poisoning by potassium chlorate that have been reported by Jacobi, Hofmeier, and others, a word of warning should have been given concerning the careless use of this drug.

A few words with reference to the work of Dr. Gill, the translator and annotator of this work. He has supplied an important defect by adding a short section on intubation, which appears, in its proper place, at the end of the work. There seems to be no good reason why the section on the surgical anatomy of tracheotomy, also added by Dr. Gill, should not have been placed in the same situation instead of at the beginning of the book, where it is certainly out of place.

Dr. Gill deserves the thanks of those who are not familiar with French for making this book accessible to them. The laborious work of translation has been, on the whole, well performed, but is marred by certain inaccuracies which should be expunged from the next edition. For example, *école de médecin*, p. 44; *société medical*, p. 51; *ecchémoses* and *ecchemotic*, p. 79, whereas ecchymosis is correctly written on pp. 106 and 112. Buhl is persistently written Bühl. The word "concretion" is frequently used to signify membrane, being a too literal translation of the French *concrétion*. The same word is used instead of clot on p. 111 where "fibrinous concretions in the right heart" are spoken of. The expression, "atmosphere of connective tissue," on p. 133 is not to be commended. The word "only" is often used for "except," the result being to render some sentences almost unintelligible to those who are accustomed to correct English. For example, "thus it (gangrene) is not encountered *only* in the most severe forms." "It does not pass in a perceptible manner into the saliva *only* when given in quite large doses." It is a question whether the annotations would not appear to better advantage in foot-notes than in the following manner: "Tender age should be an absolute contraindication (true)," p. 397. "It is not sufficient from one fortuitous success that therapeutics be authorized to use dangerous and depressing means (hive syrup is the same thing)," p. 397. This is very obscure and reminds one of the line from an old play, "Egad, the interpreter is the harder to understand of the two."

A more careful reading of the proofs will enhance the value of a second edition. Until that appears, and perhaps afterward, readers of French will have recourse to the original.

F. P. H.

PUBLIC HEALTH. THE LOMB PRIZE ESSAYS. Award made at the Thirteenth Annual Meeting of the American Public Health Association, Washington, D. C., December 10, 1885. With an Appendix. Second edition. 8vo. pp. 196. Concord, N. H., 1886.

1. **HEALTHY HOMES AND FOOD FOR THE WORKING CLASSES.** By VICTOR C. VAUGHAN, M.D., Ph.D., Professor in the University of Michigan.
2. **THE SANITARY CONDITIONS AND NECESSITIES OF SCHOOL-HOUSES AND SCHOOL-LIFE.** By D. F. LINCOLN, M.D., of Boston, Mass.
3. **DISINFECTION AND INDIVIDUAL PROPHYLAXIS AGAINST INFECTIOUS DISEASES.** By GEORGE M. STERNBERG, M.D., Major and Surgeon U. S. Army.
4. **PREVENTABLE CAUSES OF DISEASE, INJURY, AND DEATH IN AMERICAN MANUFACTORIES AND WORKSHOPS, AND THE BEST MEANS AND APPLIANCES FOR PREVENTING AND AVOIDING THEM.** By GEORGE H. IRELAND, of Springfield, Mass.

THE four essays which make up this volume were selected as the best out of many offered in competition for the prizes offered by Mr. Henry Lomb, of Rochester, N. Y., through the American Public Health Association, for practical papers on the subjects presented. The volume has been prepared in its present handsome and durable style, which is uniform with the annual volumes of the Association, for public and private libraries, but a cheap pamphlet form has been printed, and is sold at a nominal sum, in order to secure a wide distribution. The object of these essays is to present in clear and attractive form reliable information upon practical topics of value to all classes of society, but of especial importance to school children and the working classes, and thereby to educate the masses in useful sanitary truths.

The first essay on *Healthy Homes and Food for the Working Classes*, by Dr. Vaughan, which comprises by far the largest part of the volume, describes clearly, without going into unnecessary detail, the features of a healthy dwelling-house, and the various substances which constitute wholesome articles of food. The first section gives sensible advice with respect to the principles and rules to be observed in building a home. Directions are given for selecting the location of the house, for the plan, materials, and manner of its construction, for heating and ventilation, for the water supply, disposal of waste, and also for the care of the house. Hints on buying or renting a house have not been omitted.

The second section, on healthy food, has been treated briefly, though without omitting anything of practical value, and forms a common-sense exposition of an important subject which generally is too scientifically

handled for the comprehension of the masses. It is interesting and useful reading, and cannot fail to be properly appreciated by those for whom prepared.

The second essay, on *The Sanitary Conditions and Necessities of School-houses and School-life*, covers thirty-six pages, into which is condensed a fund of information upon school-hygiene, such only as might be expected from so experienced and competent an authority as Dr. Lincoln. The principal subjects which come under consideration are: Site of the school-house, plan and arrangement of the building, ventilation and heating, sewerage, hygiene of the eye, school-desks and gymnastics, affections of the nervous system, contagious disease, and sanitary supervision. The statement of principles and facts contained under each of these divisions of the subject, is very full, and is presented without discussion, which would be out of place in a book of this character. The whole essay is quite abreast of the latest knowledge on the various topics treated of, and forms an authoritative and handy guide on school-hygiene.

In the third essay, on *Disinfection and Individual Prophylaxis against Infectious Diseases*, Dr. Sternberg follows pretty closely the conclusions reached by the Committee on Disinfectants of the American Public Health Association, and published in their report. While he restricts the meaning of the word disinfection to the destruction of infectious material, he wisely does not limit the practice of disinfection, in the popular sense of the word, so that disinfection is considered in its broad sense, or that in which the word is commonly used, as well as in its restricted or scientific sense.

After explaining the tests of disinfection, the author proceeds to give reliable, practical directions with reference to the use of disinfectants, and the best methods of disinfection. Disinfectants are arranged in two groups: those which have the power of destroying spores, and those which are effective in the absence of spores, and only those agents are named which are known to be of great practical value.

Section second, which treats of individual prophylaxis against infectious diseases, forms a very valuable part of the essay, inasmuch as it contains a condensed and plain and intelligent statement of the measures of individual precaution against those infectious diseases which are most common and most fatal. The whole essay is of great practical value, and its wide circulation will tend to correct false and dangerous views of a subject which some time or other more or less intimately concerns every member of a community.

The last essay, on the *Preventable Causes of Disease, Injury, and Death in American Manufactories and Workshops, and the Best Means and Appliances for Preventing and Avoiding them*, is a tract which should be in the hands of every manufacturer and workman in the land. It is a statement, in outline, of facts and principles to be observed for the protection of the health of the workman while engaged in his avocation, but concerns equally the employer and employé. The subjects treated of are the location and construction of buildings, the construction and management of elevators, fire-escapes, water-closets, etc., ventilation, light, heating, lighting, water-supply, removal of dust, prevention of fires, handling of goods, care in the management of motors, and avoid-

ance of accidents, noise, seating of workmen, aids for the injured and sick, precautions with regard to contagious diseases, the handling of poisonous substances, hygiene of the person and premises, etc. The treatment of the subject is by no means exhaustive, nor is it intended to be so, the aim being rather to furnish hints upon a branch of inquiry affecting the health and comfort of the workman, which has hitherto been much neglected in this country.

The four essays which comprise this volume, taken collectively, form a handbook of useful information upon questions of great popular interest. The selection of the topics has been judiciously made, and the essays have been written by authors whose familiarity with the subjects and appreciation of the aims of the treatise, have enabled them to produce a reliable work of a highly meritorious character, which every one may consult with profit. The book is handsomely printed on the best paper, and is bound uniformly with the annual volumes of the Association. A copious index adds to its completeness.

W. H. F.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE. UNITED STATES ARMY. AUTHORS AND SUBJECTS. Vol. viii. LEGIER—MEDICINE (Naval). 4to pp. [10] 1078. Government Printing Office, Washington.

IN his prefatory note addressed to General Moore, Dr. Billings tells him that this volume contains 13,405 author-titles, representing 5307 volumes and 13,205 pamphlets, with 12,642 subject-titles of separate books and pamphlets, and 24,174 titles of articles in periodicals. These simple figures do more, perhaps, to convey to the intelligent reader an idea of the scope and magnitude of the volume than any mere eulogistic phrases that the reviewer can throw together. We say eulogistic, for the reason that no one can have anything like a just appreciation of this and the preceding volumes of the Index-Catalogue, and use other than words of eulogy. Praise for the scheme which led to so monumental a plan as that of gathering together in one place all medical literature, and praise for the energy and ability which have carried on the work, and by means of this catalogue made it available for the needs of every scientific physician.

But should any one find the figures given by Dr. Billings insufficient to convey a definite idea of the value of this particular volume, let him turn over some of its pages with us and take at random a few titles upon which to base an estimate. Five pages and a half, or eleven columns of print are required to contain the titles of articles bearing upon the anatomy and the diseases of the crystalline lens, while twenty-two columns are occupied with leprosy, and twelve with leukæmia. Those contained on pages 177 to 219 are required to note the literature of lithotomy and lithotrity, and that pertaining to the liver stretches from page 223 to page 294. It were easy to extend this kind of analysis, but to do so would serve no useful purpose, and would only tend to fatigue our readers. But few among them are unaware of the character of the

catalogue, and those few will have learned from what has been already said, enough as to the amount of ground covered by this mere list of the great medical library at Washington. That library is one of the peaceable fruits we owe to the turmoil, the terror, and the tears through which we passed by the War of the Rebellion to secure the establishment of the State. It is one of those way marks which distinguish our enfranchisement as a nation, and must remain a monument to which the medical men of the country can point as the result of the energy, the foresight, and the pluck which belonged to those who contended with the issues of the great civil war.

To Dr. Billings the issue of each successive volume must be an event of importance, and it is one upon which all who know something of the part he has borne in bringing both library and catalogue into existence will congratulate him. But we cannot lay down our pen without once more crying out to make haste. Time is very short. Many, very many, have died with their catalogues incomplete, and would members of Congress listen to us they would at once appropriate the funds which would permit of the publication of the remaining volumes without delay.

S. A.

DRUITT'S SURGEON'S VADE-MECUM. Edited by STANLEY BOYD, M.B., B.S. Lond., F.R.C.S. Eng., Assistant Surgeon and Pathologist to the Charing-Cross Hospital, and Surgeon to the Paddington Green Hospital for Children. Twelfth Edition. 8vo. pp. xvi. 985. Philadelphia: Lea Brothers & Co., 1887.

AN army of surgeons will welcome an edition of "Druitt" brought up to the times, for we believe that it would be difficult to name any one book to which a larger number of the profession owes its first impressions of the science and art of surgery, than this very popular text-book.

A somewhat careful examination of the work leads us to believe that Mr. Boyd does not exceed proper limits when he claims to have made such extensive revision of the book as to amount well-nigh to its rewriting. Every page bears witness to the careful and thorough editing to which it has been subjected, and the book now stands upon the level of the ground occupied by modern surgery. Very wisely, the chapter upon diseases of the eye has been omitted, one on its injuries being substituted therefor, and the editor has endeavored to keep down the size of the volume by every means in his power, but he has added sections on surgical diagnosis, and given much larger space to pathology, while he has added no less than seventy-three new woodcuts. Among these last we notice some pictures of ligated arteries which aim at representing the wound just as it is seen in the cadaver. The series impresses us as most valuable, for while no attempt is made to furnish anatomy made easy by diagrams, the drawings are carefully made to present those layers and parts which appear in operations upon the dead body. They are accurately drawn and do all that illustrations can do to facilitate the performance of the surgical proceedings involved. We do not hesitate to say that Mr. Boyd has discharged his task well, and has given to the

medical public, under the title of an old favorite, a thoroughly trustworthy and reliable epitome of surgical practice, as at present pursued. He is also very modest in quoting the standard works to which he is under obligations. The make-up of the book is excellent, though we incline to think that a larger page would make a less portly volume, and one that could, therefore, be more easily held in one hand.

S. A.

DU DELIRE CHEZ LES DÉGÉNÉRÉS. Par le DR. M. LEGRAINE. Ancien interne des Asiles d'Aliénés de la Seine. Svo. pp. vi. 290. Paris: A. Delahaye et E. Lecrosnier, 1886.

INSANITY IN THE WEAK-MINDED. By DR. M. LEGRAINE.

IN an extended service at the great asylum of St. Anne, in Paris, under the direction of Prof. Magnan, the author has had exceptional opportunities for the study of insanity. The subject of this monograph is the mental derangement consecutive to bad hereditary tendencies. Many persons are predisposed to mental disease from their birth; they display degenerate types of mind. Some form of cerebro-spinal disease, or of insanity, or some toxic influence in the parent, results in a mal-development in the brain of the child. The child may be an idiot, or an imbecile, or simply weak-minded and stupid; or in youth or adult life he may show some form of mental derangement, becoming, perhaps, actively insane, or being merely eccentric and ill-balanced. The hereditary weakness of mind predisposes the individual to the development of insane delusions, and these taking possession of the weak-minded person, manifest characteristic forms.

In the first part of this monograph the mental condition of idiots, imbeciles, and the feeble-minded is very carefully discussed, and a valuable discriminating analysis of the varying mental incapacity of these unfortunate persons is given. In the second part insanity of hereditary origin is fully considered. In the term "*folie des dégénérés*" the author includes the various conditions, termed in English monomania, a term which is giving place to *paranoia*, a far better equivalent for the German name, Primäre Verrücktheit. The most frequently observed form of this affection is chronic insanity, with delusions of persecution. The characteristics of *folie des dégénérés*, according to Legraine, are first "obsession"—that is, the patient is completely dominated in a certain line by an insane delusion; secondly, "impulsion"—that is, the patient is impelled irresistibly to the expression of his delusion in words or acts; thirdly, complete knowledge of his delusion, and the impulses to which it leads; fourthly, a concomitant distress, which gives emotional quality to the delusion; and, lastly, a consecutive relief, which follows the carrying out of the impulse. These will be recognized as characteristics of paranoia. The various monomanias, kleptomania, dipsomania, pyromania, etc., are very properly considered in this connection as traceable to defective cerebral development; and reasoning mania and moral insanity are regarded as due to the same cause. A large number of carefully recorded histories of cases are given in illustration of the positions advanced by the author, and form a valuable part of the work.

The book is based upon accurate clinical observation, and although exceptions may be taken to some of its statements, it deserves the careful study of all who are interested in the study of insanity. M. A. S.

THE STUDENT'S GUIDE TO DISEASES OF THE EYE. By EDWARD NETTLESHIP, F.R.C.S., Ophthalmic Surgeon to St. Thomas's Hospital, etc. Third American from the Fourth English Edition, with a Chapter on Examination for Color Perception, by Wm. THOMSON, M.D., Professor of Ophthalmology in the Jefferson Medical College. With 165 illustrations. Royal 12mo. 475 pages. Philadelphia: Lea Brothers & Co., 1887.

"LET well enough alone" is a precept the wise physician is very apt to follow; and it would not have surprised us if the author had rested upon it with reference to this work, which the reviewer of the first edition so justly pronounced, "the best manual on ophthalmic surgery for the use of students and busy practitioners." But, with Mr. Nettleship, no book is "well enough" if it can possibly be improved, and he has repeatedly allowed his popular text-book to remain months out of print, in order that the new edition might in every way be brought abreast of the time. In the extent of additions made to the text the present edition surpasses all its predecessors. The author, in his preface to the fourth English edition, states, "with every wish to avoid overloading, I have been obliged to enlarge the book by about thirty pages." But in the American edition this enlargement amounts to sixty pages.

The additions made are to be found in all portions of the work, and are not mere accretions but thoroughly incorporated portions of it.

Among the more extensive additions is a detailed account of "retinoscopy" both with the concave and plane mirror. Of the value of this procedure the author says, "Retinoscopy is a valuable means of objectively determining the quantity of any error of refraction, and as it is more easily learnt, and, on the whole, more accurate in its results than estimation by the direct method, it has, in the hands of many of our students and assistants, almost displaced the latter method as a preliminary to testing the patient with the trial lenses. For the quick discovery of very slight astigmatism, and of the direction of the chief meridians in astigmatism of all degrees, retinoscopy probably excels all other methods." So popular is retinoscopy likely to become, that the author fears that it, by preventing the mastery of "the more difficult 'direct method,' may tend to lower the present high quality of English ophthalmoscopic work." This fear may be justified by the state of affairs in London, where the "direct method" has not heretofore been very much cultivated; but it could not apply to this country, where the "direct method" is often practised to the almost total exclusion of other forms of ophthalmoscopic examination.

While most of the few errors and inaccuracies of former editions have been corrected, we notice the retention of a very glaring one in the second sentence of Chapter I., which reads: "If the deviation in passing from vacuum into air be represented by the number 1, that for crown

glass (of which ordinary lenses are made) is 1.5, and for rock crystal ('pebble' of opticians) 1.66. Such a number is the refractive index of the substance." Now, if the refractive index of a vacuum be taken as 1, that of air is represented by 1.000294, and that of crown glass by about 1.54; and the deviation of the ray of light passing from vacuum into air of ordinary density is 0.000294, and passing from air into crown glass 0.54, a very different proportion from that mentioned. As the ideas of the student in this direction are apt to be hazy enough anyhow, any additional fog transmitted from the mind of the teacher is likely to cause a total obscuration of the principle involved.

No important alteration has been made in Dr. Thomson's chapter on the practical examination of railway employes as to color-blindness, etc.; but since it was first published abundant experience, at the hands of many corporations, has demonstrated its superiority to other attempts in this direction, and illustrated the importance of bringing scientific tests into practical popular form.

The present edition has more cuts and is printed with better type than the former editions. Its fifteen page index makes it a ready reference book for the busy practitioner, as well as a "student's guide." And this is a great advantage, for it is always more satisfactory to use for reference a book with which one has become familiar by previous study.

E. J.

A PRACTICAL TREATISE ON THE DISEASES OF THE HAIR AND SCALP. By GEORGE THOMAS JACKSON, M.D., Instructor in Dermatology in the New York Polyclinic, etc. Pp. 356. New York: 1887.

THE author of the work before us has brought together and classified a good deal of valuable material, which before was to be found only in general literature, and for this labor he is entitled to the thanks of the profession. The anatomy, physiology, and hygiene of the hair are first considered, then come long chapters devoted to the essential diseases, including canities and other changes of color, the several varieties of alopecia, hypertrophy of the hair, and sycosis. Next follows a full account of the parasitic affections, and finally the diseases of the hair due to secondary diseases of the skin, such, for example, as syphilis and lupus. The text throughout is characterized by plain statements, intelligible alike to layman and physician, and is largely free from discussion and theory. Authorities and journal literature are widely quoted and judiciously utilized, the work of the past twenty-five years being well represented. The views expressed on the whole are in accord with those of the leading dermatologists of the present day.

The most interesting chapter, perhaps, to the general practitioner, is that on the removal of superfluous hair, especially from the face of women, by means of the needle and electrolysis, which is now occupying so much attention both here and abroad. The directions given are brief, but practical, and in the main judicious, although we think the author refers too lightly to the scarring that follows the operation, and which, in some cases, proves in itself a disfigurement.

The volume is illustrated here and there by wood-cuts, taken mainly

from well-known sources, most of which we are compelled to say, are crudely reproduced, and are not in keeping with the rest of the book. A notable omission is that of drawings representing the fungi to which the vegetable parasitic diseases of the scalp owe their existence.

The volume closes with a valuable bibliography, including more than six hundred references to the subject-matter of the work, admirably arranged. We commend the book to all those interested in the hair.

A PRACTICAL TREATISE ON IMPOTENCE, STERILITY, AND ALLIED DISORDERS OF THE MALE SEXUAL ORGANS. By SAMUEL W. GROSS, A.M., M.D., LL.D., Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia., etc. Third edition. 8vo. pp. 172. Philadelphia: Lea Brothers & Co., 1887.

THIS book of Dr. Gross's is too well known to the profession to call for extended comment. Standing in great measure alone, it treats of matters which can only be elsewhere found scattered through many larger works, and its importance as filling a niche hitherto in great measure unoccupied is evidenced by the demand which has called for a new edition. Further confirmatory evidence of the same kind is to be found in the fact that the book has been recently translated into the Russian language.

This third edition has been rewritten and the subject brought up to the present time, so that the reader may safely conclude that nothing of value touching the theme of which it treats will be found omitted from its pages. Indeed, one of the principal features of the book is the demonstration it incidentally affords of the small amount of real scientific knowledge we possess upon a topic concerning which there has been much speculation, and but little careful scientific observation. What we do know is contained within this modest-sized volume, what we may hereafter know as the result of careful study, we may confidently expect will be shown by the future editions of it, sure to be demanded.

S. A.

ELEMENTS OF PHARMACOLOGY. By DR. OSWALD SCHMIEDEBERG, Professor of Pharmacology, etc., in the University of Strassburg. Translated by THOMAS DIXSON, M.D., Lecturer on Materia Medica in the University of Sydney, N. S. W. 8vo. pp. x. 223. Edinburgh: Young J. Pentland, 1887.

THIS book is, as is stated in the preface, intended as a pharmacological commentary on the second edition of the German Pharmacopœia and contains short accounts of the action of the more prominent drugs in that work, rather than any attempt at directing the physician in his combat with disease. It is quite copiously illustrated by tracings showing very beautifully the influence of several of the drugs on the pulse and respiration, and contains the records of some experiments of great value to the general practitioner. One of the most important of these is the warning which is sounded against the too free use of chloroform in the pregnant woman, and the author states that according to the

experiments of Runge, "death of the uterine contents may be caused by a single deep chloroform narcosis." This is believed to be due entirely to the lowered arterial pressure present, combined with the depressed heart, the result being reached by the interference with the carrying of oxygen to the placental tissues in sufficient amount. Ether is to be preferred to chloroform therefore, for evident reasons, although, in the opinion of Schmiedeberg, this drug must be used with great care under such circumstances. Scarcely less interesting to the physiologist are the pages devoted to the consideration of the neutralization of the blood by hydrochloric acid and the entire recovery of the animal under the use of carbonate of soda.

Instances of useful and interesting reports might be quoted *ad libitum* did space permit, but as we are thus limited we can only refer the reader to the book itself, which will well repay careful study.

H. A. H.

GUIDE TO THE ADMINISTRATION OF ANÆSTHETICS. By HENRY DAVIS, M.R.C.S., Administrator of Anæsthetics to St. Mary's and the National Dental Hospitals. London: 1887.

THERE is no excuse for the appearance of this little book, except as a note-book for the author's classes. The subject is too large to be thus undertaken. Of its fifty-two pages, eight are taken up with the subject of cocaine. About seven more are devoted to descriptions and cuts of inhalers, and still four and a half more to an apparatus for combined use of ether and nitrous oxide, which can be used only in a hospital. The utmost brevity will not excuse the omission of some points in physics, such as the relative weight of anæsthetic vapors and air, the effect of a current of air in increasing the amount of vapor carried, the wide variation in amount of vapor which air will take up at different temperatures. A knowledge of these things is indispensable to the junior, or to any, anæsthetizer.

Since the A.-C.-E. mixture is mentioned as having been "tested and recommended," we should like to have had an expression of opinion as to its merits, and to learn to what extent it is used in England. We are told that "at the Middlesex Hospital a mixture of ether one part, and chloroform two parts, finds favor, and has been much employed in that institution."

Short as this "guide" is, we must protest against one of its teachings. It says in regard to the administration of chloroform during the struggling stage: "It is well to remember that the more continuously the drug is administered at this stage, the less the patient struggles." Possibly true, for the struggles are likely to cease in death! We are strongly of opinion that this teaching is positively dangerous. During struggling is just the period when inhalation should be interrupted. Intra-thoracic pressure is then much increased, and a sudden deep inspiration, after suspended respiration, may carry air into the chest so heavily charged with vapor as to prove fatal. Many deaths have occurred in this stage of anæsthesia, and the greatest care is required during it. A "long-felt want" in the profession probably exists, but this book will not satisfy it.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

GLEDITSCHINE, OR STENOCARPINE.

An explanation of our abstracts of papers concerning the newly invented alkaloid, said to be obtained from the leaves of the "tear blanket tree," may perhaps be due to our readers. In the summary of the last issue of this JOURNAL there appeared abstracts of two papers published in the *Medical Record* of the previous month—the first of these by DR. CLAIBORNE, giving an account of the new marvel, including the incidents of its discovery; and the second by DR. H. KNAPP, consisting of a characteristically elaborate and full investigation of the new analgesic from the physiological standpoint chiefly. When these investigations appeared suspicions were soon aroused, and it was suggested that precisely similar effects were produced by a combination of cocaine and atropine, and chemical examination of the solution confirmed this view of the origin of the new alkaloid. That medical journalists and practitioners should be deceived by articles appearing in contemporaries is not surprising, since they must accept as true reports of experimental and clinical work, not on their face improbable. Especially in this era of marvels, who can set bounds to discovery, or limit the results of applied science? If the alleged new alkaloid is finally shown to be fraudulent, we may obtain a few crumbs of comfort, at least, in the demonstration of the analgesic and hypnotic action of the combination.

TREATMENT OF SYPHILIS.

In the issue of the *Bulletin Gén. de Thérapeutique* of October 30th we find a useful paper on the treatment of syphilis, by PROF. VERNEUIL. As a representative of the more conservative of French surgeons, Verneuil speaks with authority on such topics. The conclusions at which he arrives harmonize with the opinions most generally held. He maintains the superiority of mercury. As respects the diagnostic value of the two agents—iodides and mercury—he never decides the question of specific lesion or not, except from the results of a trial of mercury. In three examples of old syphiloma of the testicle—cited for illustration—the iodide of potassium in massive doses failed to disperse the tumor, but mercurial treatment effected a cure in a few weeks, thus demonstrating the nature of the neoplasm.

Professor Verneuil does not advocate the huge doses of iodide of potassium now in vogue—2 to 3 grammes (30 to 45 grains) per day being his maximum—except in cases of rapidly destructive ulcerations of the nares, veil of the palate, and similar lesions, and even then in quantity not exceeding 75 or 96 grains *per diem*. He has never favored the conjoint administration of mercury and iodides. He prefers to give mercury by itself, and associated with remedies to improve the general state of the patient. He has occasionally made use of the combination of these remedies in slowly developing secondary or tertiary accidents when mercury does not act well, or has not been given at all. Under such circumstances he prescribes in the simplest way $\frac{3}{4}$ grain of protoiodide of mercury and 15.5 grains of potassium iodide.

Mercurial frictions, although, in some cases, acting energetically, do not commend themselves to his judgment. When he has employed inunction, he has not dispensed with the internal administration of the protoiodide or some other mercurial, in small doses. Nor has he practised the method of subcutaneous injection of mercurials, which often cures, apparently, in twenty to thirty days. He holds that the most certain curative results are obtained by the slow saturation of the organism as effected by the stomachal administration, rather than by sudden impression.

For the local treatment of syphilitic ulcerations, mucous patches, etc., the early manifestations of the constitutional state, he employs nitrate of silver, or chloral solutions, topically, in conjunction with the use of mercury internally.

SPARTEINE IN CARDIAC DISEASES.

MASLOWSKY (*Rouss. Med.*, No. 13, 1887, *Ibid.*), at the clinic of Prof. Kouznetzow, to test the conclusions of Sée, has experimented with sparteine in cases of uncompensated cardiac lesions. He finds that sparteine in moderate doses increases the action of the heart, and that the effects are quickly produced. Contrary to Sée, he does not find that the heart-beats are made entirely regular. The quantity of urine is increased. No cumulative effects are observed.

ELIMINATION OF MERCURY.

Apropos of the mercurial treatment of syphilis, we quote some observations by MECHAILOWSKY, on the elimination of mercury as influenced by the route by which administered.

When mercury is applied by friction, it appears in the urine in two hours after the first application; but when lanolin is used as the vehicle, the urine furnishes no reaction until six frictions have been made. In general, it can be said that the presence in the urine of mercury given by inunction, is in a direct ratio with the number of applications, and, as above stated, the character of the vehicle used.

When mercury is administered by subcutaneous injection, excretion by the kidneys goes on in the same manner as when the drug is rubbed into the skin. The simultaneous administration of iodide of potassium lessens the excretion considerably.

It has been ascertained that the urine of patients in the vicinity of those

receiving mercurial inunctions, after thirty-three or thirty-four days, manifests the evidences of mercurial impression.

It was demonstrated, also, that warm-air baths had an extraordinary effect in increasing the elimination of mercury, and when salivation had occurred, it was notably diminished also. After twenty to twenty-five air baths the most rebellious stomatitis rapidly disappeared.—*Bull. Gén. de Thérap.*, October 30, 1887.

ACTION OF ACETANILIDE (ANTIFEBRINE).

In the journal above quoted, are the conclusions of TEUTSCHINSKY in regard to the actions of acetanilide. He finds that it lowers the temperature, lessens the pulse-rate, and increases cutaneous and renal action. The duration of the effect is from six to nine hours—the maximum being reached in about four hours after its administration. Repeated daily doses of thirty grains do not have a cumulative effect, and the exacerbations of fever are not accompanied by such ill effects as cyanosis, rigors, and collapse.

INSUFFLATION IN WHOOPING-COUGH.

The following combination has acted very favorably in whooping-cough:

Benzoïn in powder and salicylate of bismuth \mathfrak{D} iv of each; quinine 15 grains. This is thoroughly incorporated and reduced to the finest powder. By means of an insufflator, or a suitable tube, merely, the powder is blown through each side of the nares into the posterior nares and pharynx several times a day.

A GARGLE IN STOMATITIS.

The following formula is an excellent gargle in cases of stomatitis, caries of the teeth, etc.:

Tannin \mathfrak{Z} ij; tincture of iodine \mathfrak{D} iv; iodide of potassium \mathfrak{D} j; tincture of myrrh \mathfrak{D} iv; rose water \mathfrak{Z} viiij. A dessertspoonful in a small glassful of warm water is used to wash the mouth thoroughly every morning.

THE TREATMENT OF DIPHTHERIA.

An elaborate paper on the management of diphtheria by DR. G. GUELPA, is concluded in the issue of October 30th, of *Bulletin Gén. de Thérap.* The special point brought forward by the author is "*irrigation, the most frequent possible.*" He has employed a solution of the perchloride of iron for this purpose, chiefly from habit, but other solutions—of lime, carbolic acid, and borie acid—may, he admits, be quite as efficient—may be more efficient—for the agent used is quite secondary, the main consideration being the frequent irrigation. Dr. Guelpa advocates the early and persistent, and almost continuous application to the parts threatened with an extension of the diphtheritic process.

Cauterizations are negatived. Perchloride of iron solutions, 5 to 10 per 1000 in strength, have proved most successful in a long series of cases of different periods. The irrigations are practised every quarter of an hour during

the day, and every half hour at night, in the milder cases with moderate force through the fauces and nares, as is done with the nasal douche; but when the resistance to the passage of the fluid requires it, the hand-ball should be used to pump the fluid through. When irrigation is practised early and efficiently, it is comparatively rare to find the disease spreading to neighboring parts. It is relatively easy to bear by the patient, and to apply by the attendants.

As Dr. Guelpa submits many cases illustrating the utility of the method, there can be little doubt of its value. There are no difficulties in the way. As it is the irrigation rather than the character of the medicament that determines the result, the practitioner has a wide choice of materials, and, hence, those objecting to the disagreeable iron chloride, can employ other medicaments. Probably, those agents having a solvent action, as papain, lactic acid, lime, etc., can be used with the expectation of the best results. *It is the early, frequent, and copious irrigation that accomplishes the important curative results obtained by Dr. Guelpa's method.*

A NEW HYPNOTIC.

Amylen-hydrat (*Dimethyläthylcarbinol*, $C_8H_{12}O$) has been investigated by PROF. J. v. MERING, in Strassburg (*Centralblatt für die gesammte Therapie*, October, 1887), who has found it to be a hypnotic of some value. 15.5 grains dissolve in an ounce of water. It has a somewhat pungent and camphoraceous taste. In physiological action it resembles paraldehyde, and in power of effect ranks between this agent and chloral. Numerically stated, he places them in the following order: Chloral hydrate 1, amylen-hydrate 2, and paraldehyde 3.

Amylen-hydrate can be given by the stomach or by the rectum. Dr. v. Mering advises the following formula for rectal injection: R. Amylen-hydrat. 5; mucil. acaciæ 20; aquæ destil. 50.

For cases of insomnia, due to, or accompanied by pain, he combines morphine with it.

ACETANILIDE AS A NERVINE.

Influenced by the observations of Dujardin-Beaumetz, DR. SEIFERT, of Würzburg, has essayed the use of acetanilide in various painful maladies. The results of this trial are given in a paper published in the *Wiener. med. Wochenschrift*, No. 35, 1887, an abstract of which is given in the *Centralblatt für die gesammte Therapie* for October, 1887. In two cases of migraine it proved to be very effective in eight grain doses, and it was, also, equally useful in six cases of general headache with an anæmic basis. In three cases of trigeminal neuralgia Dr. Seifert had excellent results. For the most part, his observations are in accord with those of Dujardin-Beaumetz.

ANTIPYRIN IN CHOREA.

DR. WOLLNER (*Müncher med. Wochenschrift*, No. 5, 1887, in the *Centralblatt für die gesammte Therapie* for October, 1887) has had a good result from the administration of antipyrine in a case of severe chorea, which had resisted many approved remedies.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,

INSTRUCTOR IN THE LABORATORY OF THE COLLEGE
OF PHYSICIANS AND SURGEONS, NEW YORK.

CONTRIBUTION TO THE DIAGNOSIS OF DISEASES OF THE STOMACH.

RIEGEL (*Zeitsch. f. kl. Med.*, B. xii. H. 5, 6, 426-447) contributes some observations additional to those which were published a year ago in the same journal, and of which an abstract appeared in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES for October, 1886. Another year's daily experience has confirmed him in the employment of the procedure which he then detailed.

The author then enters upon the consideration of the cases of chronic gastric disturbance observed during the last year; 134 in all, with 1709 chemical analyses. Of these, 16 cases were instances of carcinoma, on 5 of whom autopsies were held. In these 5 there had been made during life 154 analyses without ever detecting the presence of hydrochloric acid; nor had the filtrate from the gastric contents ever digested albumen. Not even on days when large doses of the acid had been given soon after the meal had there been free acid or peptic strength discovered at the examination. In 3 of the other 11 cases there had been at first a weak reaction for hydrochloric acid with a diminution of peptic strength, though even this entirely disappeared later. These cases must be considered instances of commencing carcinoma, since it is, of course, not to be expected that the acid will disappear suddenly. The author, therefore, reiterates his opinion that free hydrochloric acid and peptic strength are usually wanting in carcinoma, and that when constantly present they exclude absolutely the existence of this disease, no matter how suggestive the other symptoms may be. On the other hand, he has never maintained that their absence is proof of the presence of carcinoma, since this absence may occur in other diseases. The statements of Cahn and v. Mering that in carcinoma of the pylorus hydrochloric acid is present in nearly normal quantity, and that the methyl-violet test is valueless, are, he believes, not well founded, for reasons which he explains. As regards instances of other gastric disorders, Riegel observed two cases, diagnosed simple gastritis, with constant failure of the free acid and of peptic strength. It is, however, possible that these were in reality of a carcinomatous nature. The chemical examination of two cases of carcinoma of the œsophagus revealed nothing of diagnostic value.

There were 42 cases of gastric ulcer under observation, and 382 analyses were made. In all of them the amount of hydrochloric acid was decidedly increased, and the digestion accelerated. Riegel thinks that the hyperacidity is primary, predisposing; and the ulcer secondary. With Ewald, v. d. Velden,

and others, the author makes a sharp distinction between hypersecretion and hyperacidity. The first indicates a continuous secretion of the gastric juice, independently of the presence of food in the stomach. The second signifies an increase of the production of hydrochloric acid during the act of digestion. The latter not seldom occurs alone; the former is always accompanied by hyperacidity. In recent ulcer of the stomach hyperacidity alone exists, but later hypersecretion may be added to it, and gastrectasia then develop. The list of cases contains 18 instances of chronic hypersecretion and hyperacidity, in which 686 analyses were made. All of these cases exhibited an abundant production of gastric juice even when the stomach was empty—this being, of course, a pathological condition—all suffered from more or less gastrectasia, and in 12 there had been or still existed symptoms of ulcer. Ulcer has no causal relation to dilated stomach; both being results of hypersecretion.

The constant presence of the gastric juice in the stomach, while favoring the rapid digestion of albumen, interferes greatly with the digestion of the amylaceous portion of the diet; hence remnants of food remain so long in the viscous state that ectasia is produced. Hyperacidity alone may occasion an ulcer, but cannot occasion gastrectasia, since it causes no retention of the food in the stomach. Stenosis of the pylorus as the result of ulcer, is seldom the cause of dilatation of the stomach. Among the symptoms of hypersecretion are pyrosis, colicky pain, and often increased thirst and appetite. Another group of cases which he reports is formed by nine instances of chronic hyperacidity, there being no evidence of hypersecretion or of ulcer. Still another consists of subacute and chronic dyspepsia. Of this there were twenty-one cases with 105 analyses, in none of which was hydrochloric acid or pepsin permanently diminished to any noteworthy extent—thus confirming the author's former experience. In some of the patients there was an increase of the organic acids, and in a few slight hyperacidity was noted. Of nine cases of nervous dyspepsia in which twenty-eight analyses were made, only one exhibited any change of the gastric secretion; there being but a slight transitory hyperacidity. All of five cases of cholelithiasis were found to present a normal secretion, though twenty-four analyses were made. A very interesting case of severe dyspepsia, caused by the backward flow of bile into the stomach, confirmed the observations of the author made a year ago. The examinations made each day for seventeen days revealed neither free hydrochloric acid nor pepsin; but from the eighteenth day onward bile disappeared from the filtrate, and the gastric secretion returned to its normal character.

In one or two cases of vomiting of pregnancy the author was able to obtain the contents of the stomach at a suitable time after eating, and found the secretion normal or even slightly hyperacid. Fifteen examinations in a case of phthisis with extreme dyspepsia showed always an absence of peptic strength and of free acid. The author believes that amyloid degeneration of the stomach was probably present here. Fifteen analyses in three cases of chlorosis revealed a slight increase of the amount of hydrochloric acid. A case of diabetes underwent four examinations, but without positive results. Two instances of acute febrile processes (erysipelas and typhoid) were each examined once with negative results. The absence of hydrochloric acid and peptic strength is not, therefore, a necessary result of fever.

The author calls attention to the interesting fact that of the total number of cases of diseases of the stomach there were sixty-nine with hypersecretion and hyperacidity, and only nineteen with hydrochloric acid constantly absent. It is, therefore, not good therapy to prescribe hydrochloric acid and pepsin, or a light diet for every case of dyspepsia we meet. The actual condition of the gastric secretion must, first of all, be analytically determined.

THE ETIOLOGY OF GASTRIC ULCER.

Impressed by the fact that women employed as cooks so frequently suffer from gastric ulcer, DECKER (*Fortschritte der Med.*, B. v. 415) instituted some experiments on the action of hot foods in producing the disease. Two dogs were repeatedly fed through the stomach tube with semi-solid food heated to 120° F. The first received nourishment in this way four times, and the other eight times. At the autopsy of the first dog the mucous membrane of the stomach appeared normal in all parts, except at the lesser curvature, where there was situated a hyperæmic spot, about four-tenths of an inch in diameter, caused by a hemorrhagic extravasation between the mucous and muscular layers.

In the second dog there was found a dark red area on the posterior gastric wall, about the size of a quarter of a dollar. The mucous membrane over it was shrivelled, and resembled felt, and had been somewhat separated from the muscular layer by the occurrence of hemorrhage between them. In the pyloric region were two typical gastric ulcers, extending to the serous layer. The author considers the hemorrhagic infiltration, the shrinking and elevation of the mucous membrane, and its final destruction, to be the three phases in the formation of gastric ulcer.

THE INFLUENCE OF TRAUMA IN THE PRODUCTION OF GASTRIC ULCER.

In connection with the preceding article the observations of RITTER are of interest (*Zeitsch. f. kl. Med.*, B. xii., H. 5, 6, 592). There are a number of clinical observations which render it almost certain that gastric ulcer can be produced by violence acting through the abdominal walls. Several such cases have been studied in Leube's clinic, and an autopsy of Hofmann's offers additional evidence in the same direction. Ritter made some experiments on dogs to prove that ulcer could actually be brought about in this way. The animals received a rather heavy blow over the region of the stomach, and chloroform narcosis was then continued until death resulted. The autopsies revealed regions of hemorrhage beneath the mucous layer, separating it from the tissues below. There is no doubt that the gastric juice would have soon produced ulcers at these spots, had the animals been allowed to live.

The action of trauma in producing ulcer is probably connected with the quantity and quality of the gastric secretions. Then, too, a more chronically acting trauma, such as disturbance of the circulation, plays, perhaps, a more prominent rôle than has been ordinarily supposed; though it is difficult to understand why chlorosis should lead to circulatory disturbance oftener than do pulmonary or cardiac diseases.

It seems very probable that the use of the corset is also a frequent factor by pressing the stomach against the vertebral column. This, combined with the

pressure of the food toward the pylorus, and the anæmie condition of the mucous membrane in chlorotic women, may be sufficient to deprive the part of blood to such a degree that the gastric juice begins to act upon it.

PLEURITIS PULSANS.

KEPPLER (*Deutsch. Arch. f. kl. Med.*, B. xli., H. 3, S. 220) makes an exhaustive review of the literature of pulsating pleuritic effusion; gives abstracts of the different reported cases, and details another instance of this unusual condition—in all, thirty-eight cases. In remarks on the subject, he says that pulsation can be noticed in various forms of inflammation of the pleura, though it is by far most commonly seen in *empyema necessitatis* of the left side; twenty-three of the thirty-eight cases being of this nature. The list also contains eleven cases of simple left-sided empyema, two of *empyema necessitatis* of the right side; one of left pyo-pneumothorax, and one of right-sided pleurisy with serous effusion (the author's own case).

As regards the influence of age and sex on the production of pulsating pleurisy, as far as the data inform us, it occurs more frequently among men, and between the ages of twenty and thirty years. The author believes that in *pleuritis pulsans* the intercostal muscles must be paralyzed and yielding; the fluid must be under a high degree of pressure, and the cardiac impulse must be sufficiently strong. An exudative pericarditis as described by Traube, or the causes claimed by the writers mentioned, may be additional factors in some instances. Pulsating pleurisy usually, but not always, occurs in chronic cases, and where the fluid is purulent. The pulsation is generally universal; and hence, in *empyema necessitatis*, may be confounded with aneurism. Its seat, however, is different, and no *bruit* is to be heard; while it grows smaller under pressure, and larger after coughing.

POLYMYOSITIS ACUTA PROGRESSIVA.

The paper of UNVERRICHT (*Zeitschrift f. klin. Medizin*, B. xii., H. 5 und 6, S. 533) with the case he reports, is of interest in connection with the article on this subject in the last number of the AMERICAN JOURNAL. The case was one in which, without known cause, tearing pains developed in the arms, legs, and back, increased by motion, and rendering locomotion difficult. After about three weeks the limbs and face became swollen, though the urine was free from albumen. The swelling and pain increased, profuse perspirations were frequent, and the skin and muscles became very oedematous and tender on pressure, while the joints were neither swollen nor painful. The temperature was about 101° in the evening, but normal in the morning. Within twelve days the limbs were transformed into thick, formless masses, the oedema and tenderness had extended to the throat, and stiffness of the neck with pain on swallowing developed. Two days later the respiration grew rapid and superficial, and finally abdominal; the voice became indistinct, and the effort to swallow food caused choking. On the next day lobular pneumonia was discovered, the patient could not swallow at all, the face was cyanotic, the temperature rose to 104.5°, and the patient died asphyxiated.

This extremely obscure case was clearly one of acute inflammation of the

motor apparatus. It was not neuritis, for there was no anæsthesia or paræsthesia. Trichinosis was repeatedly suspected, but there was no ground to believe it present, and, finally, a piece of the much swollen deltoid was excised, but no trichinæ were found. The autopsy showed the muscles to be extensively diseased. Pale, somewhat translucent gray streaks were mingled in varying proportion with dark red spots of extravasation; the swollen muscles were lustreless and very friable; the extensors and a part of the muscles of the trunk being the ones affected, while the flexors were almost entirely free. The muscles of the eye and the diaphragm were uninvolved. The subcutaneous and intermuscular connective tissue was permeated by fluid. Under the microscope the muscles exhibited grave inflammatory changes, their substance being in all stages of degeneration. The connective tissue was filled with a cellular infiltration.

Unverricht passes in review all the pathological conditions of muscle which have any clinical or anatomical relation to that presented by his case, and points out in what respects they differ from it. He quotes at length two cases reported by Kussmaul and Maier, which resembled trichinosis greatly; and refers to others of Debove and Eisenlohr, but claims that they are not similar to his own. He holds the belief that the disease is of an infectious nature.

HYPERACID VOMITING, AND THE CONDITION OF THE URINE.

ROSENTHAL (*Berlin. klin. Wochenschrift*, 1887, S. 505) finds hydrochloric acid abundant in the hyperacid vomiting common in overstrained young school-girls, and in hysterical vomiting with cardialgia. In some instances, also, of *crises gastrique* in tabetic patients there was a marked increase of the amount of acid in the vomited matter, which increase was much reduced after the spinal irritation had become less.

He next endeavored to discover the state of the urine in such conditions. For this purpose he estimated the amounts of chlorides and of earthy phosphates present. He thus noticed that in forms of hyperacid vomiting occurring in mental overwork, excitement, or migraine, and often accompanied by cardialgia, there was an evident diminution of the chlorides in the urine. This was especially true in cases of obstinate and long-continued vomiting, where even small quantities of fluid were poorly borne by the stomach. On the other hand, the earthy phosphates were abundant and even increased in the conditions enumerated. Most prominent among the symptoms attending long-continued hyperacidity and vomiting may be noticed the evidences of anæmia and neuræsthenia.

The question arises whether excessive acidity is due to local processes in the stomach, or is but one sign of a general irritation of the nervous system. The author believes that both quantitative and qualitative changes in the gastric juice are under the control of a special centre, connected with a part of the bulbar centre of the vagus. This view is supported by the fact that in the *crises gastrique* of tabes, which are believed to be due to degeneration of the vagus centre, there occurs great hyperacidity of the vomited matter, at a time, too, when the stomach has been long empty of food, and when under physiological conditions no hydrochloric acid should be present. Further,

in hysteria and mental overstrain vomiting of matter, containing an unusually large amount of hydrochloric acid, is often accompanied by retardation of the pulse, dyspnoea, and attacks of coughing, indicating an irritation of the vagus centre in the medulla.

Hypersecretion of acid is to be sharply distinguished from acid dyspepsia; by which latter term the author indicates an abnormal fermentation of the contents of the stomach, and the production of organic acids. For this condition he advises the employment of hydrochloric acid in large doses, because it interferes with the formation of butyric acid. Salicylic acid is also a useful antifermentative. In cases of hypersecretion, on the other hand, alkaline mineral waters are indicated, or bicarbonate of potash with bismuth, and, perhaps, morphia; or large doses of bromide of soda. A systematic water cure may sometimes be beneficial.

CAUSE OF EVOLUTION OF SULPHURETTED HYDROGEN IN URINE.

In the October number of the JOURNAL we had occasion to notice the investigations of Rosenheim in this somewhat obscure subject. F. MÜLLER (*Berliner klin. Wochenschrift*, Nos. 23 and 24, 1887) has made an experimental inquiry in the matter, which goes to show that the commonly accepted view that there is a tendency toward a diffusion of H_2S into the urine, when it has been generated in the body or introduced from without, is erroneous; for only after the introduction of relatively enormous quantities of the gas (in the shape of sodium hyposulphite) could its presence be demonstrated in the urine of the dog experimented upon.

Clinically he observed that all urines containing H_2S were, at the same time, decomposed—though not every decomposing urine contained H_2S . Small quantities of urine in which the gas had already been generated were capable of initiating its evolution in fresh specimens of urine when added to them. This (in accord with Rosenheim's investigations) pointed to the presence of an organized ferment as the cause of the change, and he was able to isolate at least two forms of bacteria, having the power of producing this particular decomposition. One was a large round coccus; the other an oval one having also the property of causing ammoniacal decomposition. The source of the H_2S he finds neither in the albumin nor the sulphates of the urine, but in some as yet unknown body—"neutral sulphur."

According to him, the best test for H_2S in urine is to blow a stream of air through the specimen for ten minutes against a piece of paper moistened with a solution of acetate of lead.

PARENCHYMATOUS INJECTION OF ERGOTIN IN MALARIAL ENLARGEMENT OF THE SPLEEN.

PINNA reports a case in the *Centralblatt für die medicinischen Wissenschaften*, No. 42, 1887, in which a large splenic tumor, of malarial origin, disappeared after three injections of three-quarters of a grain each, of ergotin, repeated at intervals of several days. Very little reaction occurred. The red blood-corpuscles were increased from 3,420,000 to 4,250,000, and the hæmaglobin from 48.6 to 50 per cent.

SURGERY.

 UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.

 SURGEON TO THE PHILADELPHIA HOSPITAL; CLINICAL PROFESSOR OF GENITO-URINARY SURGERY
 IN THE UNIVERSITY OF PENNSYLVANIA.

SUBLIMATE PAPER AS A DRESSING FOR WOUNDS.

GEDEKE (*Centralblatt für Chirurgie*, No. 41) has used with advantage as an antiseptic dressing filtering paper soaked in a two per cent. solution of sublimate with five per cent. of glycerine, and then dried. He has used it after extirpation of the cervical glands, amputation of fingers, and in one case after amputation of the thigh, when it was left in for ten days. He formulates the following conclusions: 1. Filtering paper soaked in a two per cent. solution of sublimate is a valuable dressing. 2. It should be used in from two to eight layers, according to the size of the wound. 3. It is especially indicated in recent wounds. 4. In complicated wounds of the fingers it has the advantage of immobilizing the parts. 5. It should usually be left on not longer than two to three days. 6. In the absence of other antiseptic materials, it will often suffice in a short time to render suppurating wounds aseptic.

THE TREATMENT OF WOUNDS BY IODOFORM TAMPONS.

DR. F. BRAMANN reports (*Archiv für klinische Chirurgie*, Berlin, 1887) the results of treatment of wounds in Von Bergmann's clinic for some years past. The gauze employed is sterilized by means of steam at 212° , and after drying may be impregnated with an antiseptic solution. The sterilized gauze is used in cases of trifling operations in small wounds. In larger wounds with more profuse secretion, it was thought best to obtain whatever advantage could be derived from the impregnation with corrosive sublimate, especially as the patients and operators are in the immediate vicinity of an audience coming direct from the anatomical rooms. The cotton employed is of late years merely sterilized. The towels, gum cloths, sponges, etc., are treated in a like manner. The silk used in sutures is wound on glass or metal spools, sterilized by steam, and inclosed in metal caskets. The catgut used for deep stitches (stitches of relaxation), and for ligatures, is kept ten to fourteen days in a solution of 4 parts bichloride, 800 of alcohol, 200 distilled water. This is frequently renewed. The catgut is then changed to an alcoholic sublimate solution of 1 to 800 alcohol and 200 parts of water, and is taken direct from this. The preparation of the patient consists in giving full baths, washing the region of operation with soap and water, shaving the part, rubbing the skin with ether, and disinfecting it with from 1 : 1000 to 1 : 200 solution of sublimate. The instruments are kept in a three per cent. solution of carbolic acid. During the operation the wound is often irrigated with 1 : 2000 bichloride solution. In operations in the abdomen, the pleural cavity, the mouth, rectum, and bladder, salicylic acid 1 : 1000, or boric acid 1 : 200 is employed,

and at the end of the operation a solution of iodoform in ether is generally used.

Next to strict antisepsis, the complete stoppage of bleeding is regarded as the chief agent in procuring union by first intention.

When the wound is dry, and the smallest bleeding vessels have been tied, the suture is applied with or without drainage, but only in those wounds which are considered absolutely antiseptic, and have not been infected through previous suppuration or contact with unclean materials. Among the cases treated in this manner are included all extirpations of tumors, removals of breasts, amputations, osteotomies, etc.

In wounds where the bleeding cannot be entirely stopped the formation of a large clot is objectionable, not only on account of the pressure which it may make, as in fractures of the skull, but because of the risk of decomposition and blood poisoning. Although such clots may, through absorption and organization into connective tissue, aid in the process of repair, they sometimes remain fluid for long periods, and during that time are a source of danger. Therefore, when it is impossible to dry the wound absolutely, or where there is the least suspicion that it is not entirely aseptic, after thorough disinfection with 1 : 1000 bichloride solution and with an ethereal solution of iodoform applied to the wound by means of a syringe, it is loosely packed with strips of iodoform gauze of several feet in length, and three to four inches broad. They are applied so that the larger part of each strip lies in the wound, and the ends come out at the angles. The sutures were formerly put in at this time, but this has been abandoned on account of the difficulty in keeping them disentangled, and of their adhesion to the iodoform gauze. The patient is now anæsthetized a second time for the application of the sutures. The tamponed wound is covered with sublimate gauze and cotton and an antiseptic bandage. If the secretions make their way through the dressings, the superficial layers are renewed, but the iodoform gauze is allowed to remain undisturbed for two days. If it is then removed by gentle traction on the ends hanging out of the wound, the latter is found clean, unirritated, not reddened, absolutely dry, and it is only very exceptionally that a ligature is required. Careful suturing with or without drainage has resulted invariably in union by first intention, even in those cases in which, for any reason, as great weakness, or for the stoppage of bleeding from large vessels, the tampon has been left in from four to six days. His report of his results is extremely interesting, includes a large number of important cases, and appears to confirm his estimate of the value of this method.

SUBCUTANEOUS INJECTION OF BLOOD AND OF SALINE SOLUTIONS.

VON ZIEMSEN (*Klinische Vorträge*, 1887, No. 3; *Centralblatt für Chirurgie*, No. 41) regards the customary operation of transfusion as attended by so many alarming symptoms, such as fever, rigors, albuminuria, hæmoglobinuria, etc., that it is not only without curative effect, but is even in itself dangerous to life. These dangers do not attach merely to the injection of defibrinated human blood, but also to the direct injection into the vessels of blood containing the unavoidable mixture of fibrinous flocculi and air-bubbles. All the

dangers of these methods are avoided if the blood is injected into the subcutaneous cellular tissue. Von Ziemssen describes his method as follows:

Well-defibrinated blood, treated with the greatest aseptic precautions, and kept at a temperature of from 98.6° to 104° F., is injected deeply into the subcutaneous connective tissue with a small syringe holding between six and seven drachms. The upper part of the thigh is usually selected. The seat of injection is at once vigorously rubbed by an assistant, and this massage is a very important part of the operation. If large quantities are injected, the rubbing is very painful and necessitates the use of an anæsthetic. For each new syringeful, a new puncture is made. The injections are continued as long as the blood-supply lasts. Von Ziemssen has thrown in as much as ten or eleven ounces in fourteen injections. After the operation an ice-bladder is laid over the part and the patient allowed to rest.

The procedure is practically without danger. No bad effects have been seen to follow it. A very slight suppuration occurred in two cases as a consequence of trifling but easily avoided errors of technique.

The subcutaneous connective tissue acts as a filter, which arrests coagula, air-bubbles, and ferments, while the red blood-corpuscles pass easily and quickly through it. After a few days no traces of free blood are found at the site of injection, while in the circulating blood there is a demonstrable increase of the hæmoglobin, which is sometimes even doubled in quantity. A slow decrease follows for several days, but this constituent of the blood is always in larger proportion than it was before the operation. After repeated operations it may reach the normal standard. A coincident increase of the red blood-corpuscles also occurs.

Severe cases of chronic anæmia have by this method been cured in a month. It has not been tried in acute anæmia after severe hemorrhage, but seems to be indicated. When danger of death is imminent, salt-water previously well boiled may be injected to prevent the "emptying of the heart-pump," but should always be followed by the injection of blood.

DEATH DURING ETHER INHALATION.

DR. D. HAYES AGNEW reports (*The Medical News*, Nov. 19, 1887) two cases of sudden death related to etherization, one occurring during anæsthesia for ligation of hemorrhoids, in which he was assisted by Dr. White; the other just before the etherization was begun in a case of herniotomy. In the former death resulted from an apoplexy into the fourth ventricle, the clot resting upon the respiratory centre; in the latter it was synchronous with an attack of vomiting, nothing having been done further than to put the patient in position. Dr. Agnew states his belief in the safety of ether, and that in reported cases of deaths occurring with careful operators, there has been an undetected element more potent than the ether, as in the first of his cases.

The feeling which he expresses as to the safety of ether as an anæsthetic, is the one generally held by practical surgeons. In 1861, a committee of the Boston Society for Medical Improvement reported that after elaborate research they had learned of no case which was unquestionably and unavoidably fatal from the breathing of pure sulphuric ether. They considered two conditions essential to placing the responsibility of any case of death upon the anæsthetic: 1. That the event should occur while the patient is actually

anæsthetized. 2. That the circumstances of its occurrence should be inexplicable by any phenomena of disease or operation. The only one of the forty-one alleged cases collected by them even remotely parallel with that of Dr. Agnew and Dr. White, is that reported by Dr. Alonzo Clark, in which the autopsy disclosed a tumor in the right lobe of the cerebellum, pressing upon the medulla oblongata. The deaths recorded later by Turnbull and Lyman in their treatises, and for a series of years by Jacob (*Brit. Med. Journ.*), are either uncertain in their relation to etherization, or were caused by asphyxia, or more rarely by syncope.

Druet (*Des Contreindications de l'Anæsthesie*, 1880) and Kappeller (*Deutsche Chirurgie*, 1881) give no new light on sudden deaths occurring during anæsthesia, and accompanied by cessation of respiration. The cases of Hunt, Morton, Levis, Hutchinson, Norris, Sims, Emmet, and others, are all instances of death after anæsthesia, at periods ranging from two hours to eighteen days, and possibly associated with nephritis.

In connection with the cases reported by Allin and by Post occurring during operations for tumors of the neck, the observation of Schiff should be remembered, that when animals are anæsthetized, pinching the skin of the neck will at once arrest both respiration and the action of the heart.

In several recorded cases, while herniotomy was being performed, the patient vomited and died. Mr. Marcus Gunn has suggested that as the vomiting of acute intestinal obstruction results from a powerful descending impulse of the vagus and as sudden arrest of the heart's action in diastole is also known to be produced by such an impulse, we may expect to meet with this association of vomiting and sudden heart failure during as well as before and after anæsthesia. Dr. Agnew's second case was possibly of this nature. The same result has occurred even more frequently under other anæsthetics.

Warrington Hayward records a death during etherization from the sudden failure of respiration owing to the occurrence of an epileptiform spasm of the respiratory muscles, whereby the chest was fixed in the position of expiration. Nothing was discovered either at the time, or at the autopsy, which gave any clue as to how the fatality could be avoided.

The doctrine of cerebral inhibition advanced by Brown-Séquard should not be overlooked in its application to the few cases of sudden death during etherization in which the autopsies failed to explain the accident. He has shown that there is an arrest or suspension of function in nerve centres, muscles, and nerves, taking place without demonstrable organic change, and following immediately upon irritation of the nervous system at some point more or less distant from the part in which the effect is observed. He attributes to this cerebral inhibition the cases of sudden death ("death without agony") which are analogous to the loss of intellectual activity that occurs in epilepsy. Such death may be produced in animals by a prick of the ventricle of Arantius in the floor of the fourth ventricle.

The possibility of this form of inhibition having occurred in their case was discussed by Drs. Agnew and White, immediately after the fatal termination, as was also the theory of cerebral embolism, both being suggested by the instantaneous character of the death, which was so evidently of central origin. The autopsy fortunately removed the case from the region of conjecture, and

supplied an easily understood explanation of the occurrence, which although probably unique in its relation to etherization, is not otherwise extraordinary, sudden deaths from apoplexies or embolisms in that locality being not infrequent. It is probable that this patient was in imminent danger, from increased vascular tension, at the time of previous etherization, and that the progressive increase in the brittleness of the arteries during the succeeding twelve months made the difference between the results, as a smaller quantity of ether was used on the second occasion. It would seem that, even in the light of this experience, the risk of such an accident is one against which no caution can prevail, but which must be accepted alike by patient and operator.

REMOVAL OF AN INTRACRANIAL TUMOR; RECOVERY.

PROFESSOR F. DURANTE reports (*The Lancet*, Oct. 1, 1887) the case of a woman, æt. thirty-five, who had successively developed loss of smell, impairment of memory, uncertainty of movement, change of disposition, etc., which led him to diagnosticate a tumor within the cranium, the pressure of which affected the anterior lobe of the brain, and paralyzed or destroyed the olfactory nerve. Moreover, the displacement of the globe of the eye indicated that the tumor had penetrated the superior arch of the orbital cavity.

He removed a large portion of the left frontal bone, commencing at the superior orbital margin inferiorly, and found that the internal parietes of the frontal sinus had been forced outwardly. The dura mater being now exposed, was found to be perforated by the tumor just opposite the frontal eminence. The tumor did not adhere beyond the internal surface of the dura mater, and its enucleation was comparatively easy, with the adherent portions of the dura mater. The hemorrhage was slight, and easily controlled by a sublimated tampon. The tumor was lobular, of the size of an apple, and weighed about two ounces. It occupied the anterior fossa, at the base of the left cranium, extending to the right and upon the cribriform lamina, which it destroyed. Posteriorly it extended to the glenoid tubercles before the sella-turcica. The left anterior cerebral lobe was greatly atrophied; the orbital arch was much depressed, but not perforated by the tumor. The bleeding was stopped, and the wound united, a drainage tube being left in the cavity, and descending to the left nasal fossa through the opening made in the ethmoid by a prolongation of the neoplasm. The nasal cavity was closed with an iodoform tampon. The operation lasted about an hour.

With the exception of some pressure symptoms produced by interference with drainage, she did very well, and returned to her home in fifteen days, improved as to movement, but not as to memory or sense of smell. Three months later the eye had regained its normal position; smell had returned; intellectual and moral faculties were normal. Three years afterward (the date of report) the patient was in perfect health.

GASTROTOMY FOR THE REMOVAL OF FOREIGN BODIES FROM THE ŒSOPHAGUS.

In a certain proportion of cases foreign bodies, which have been swallowed accidentally, pass the region of the bronchus and become lodged in the gullet

just above its diaphragmatic constriction. At any point below the cricoid it becomes dangerous, on account of the anatomical relations of the œsophagus, either to use extreme force in their withdrawal, or, still more so, if they are of indigestible material and irregular in shape, to push them onward into the stomach. Instances of death from perforation of the trachea, the pleura, and the aorta during such violent efforts have been recorded. Until recently, however, it has been thought justifiable to use these methods in certain cases.

DR. MAURICE H. RICHARDSON (*The Lancet*, October 8, 1887) was led by a case of impaction of a denture of four teeth at the cardiac end of the œsophagus, to perform gastrotomy for its removal, which required the introduction of the hand into the stomach and of the fingers into the œsophagus. The plate was found about two inches above the diaphragm, and, after considerable careful manipulation, was dislodged and removed. Dr. Richardson has since then made a series of sixty observations upon the cadaver, to determine the exact location of the foreign body with reference to the cardiac end of the œsophagus and also to the cricoid cartilage, in order that an intelligent choice might be made between gastrotomy and œsophagotomy, it being taken for granted that that operation is better in which the fingers can be used when instruments fail. The general conclusion is, that by means of gastrotomy the obstruction can be reached by the finger in all, or nearly all, cases when it is situated more than six inches below the cricoid cartilage. If less than six inches from the cricoid cartilage it can be reached best from above, though in some few cases it may be just beyond the reach of the finger; but in these cases instruments can be easily applied. The measurements of the point of impaction or obstruction having been carefully made, and it having been demonstrated that the point in the œsophagus to be reached, if necessary, by the finger is not less than thirteen inches from the upper incisors, or six from the cricoid, he would perform the operation of gastrotomy. He prefers an oblique incision six inches in length and parallel to the edge of the ribs on the left side. The stomach should be drawn out of the wound and held by an assistant in both hands, so that it is flattened out. The cut through the stomach wall must be far enough to the right to allow the passage of the instrument along the sulcus between the anterior and posterior walls. If it is brought obliquely to this groove and passed upward, all the time being pressed gently against the straightened lesser curvature, it will glide into the œsophagus easily.

Gastrotomy also has to recommend it the decreased danger in making traction *downward* in such cases. The distance is shorter and the foreign body is already below the points at which the œsophagus is in direct relation with either heart, aorta, pleura, or bronchus.

DR. WILLIAM T. BULL (*The Medical News*, October 22, 1887) reports a case in which a peach-stone became impacted in the œsophagus thirteen inches from the incisors. After unsuccessful attempts to dislodge it had been made, gastrotomy was performed through an incision three inches in length, extending from the level of the ninth costal cartilage to two inches above the umbilicus. A portion of the anterior wall of the stomach was selected, about three inches from the pylorus and midway between the greater and lesser curvatures. This was drawn out of the abdominal wound. Two loops of

silk were put through it, two inches apart, in a vertical line, and an incision one and a quarter inches long made between them. Two more loops of silk were fixed in the edges of the wound. The index-finger was then introduced, filling the wound completely, and passed directly backward to the vertebral column, and then guided by that structure was passed into the œsophagus. In doing this the anterior wall of the stomach was carried inward with the finger, like the invaginated serotum in examination of the inguinal canal. The small size of the wound prevented the escape of any possible contents of the stomach. Œsophageal forceps were passed along the finger, but failed to dislodge the foreign body. A slender bougie was then passed along the finger and projected from the mouth. A sponge, half an inch in diameter and one inch and a half long, was tied to the lower extremity with strong silk, one end of which was left long. The sponge was pulled through without bringing the foreign body. A larger sponge was then tied to the end of the silk and drawn through, bringing the peach-stone into the mouth.

The noticeable points in Dr. Bull's case are the smallness of the wound in the stomach; the invagination of the anterior wall; the use of the loops of thread, keeping the edges of the wound close to the finger, which thus acted as a plug; the very moderate manipulation of the stomach itself.

The statistics of gastrotomy for the removal of foreign bodies show 14 cases with but 2 deaths. In 12 the bodies were in the stomach, in 2 in the œsophagus. Of 82 cases of œsophagotomy, 63 recovered and 19 died.

THE DIAGNOSIS OF CHRONIC MAMMARY ABSCESS OR PHLEGMON FROM CARCINOMA.

M. PAUL RECLUS reports (*Gazette Hebdomadaire de Médecine et de Chirurgie*, No. 12, 1887) a series of cases showing the difficulty which frequently surrounds the diagnosis of mammary tumors and which, he thinks, has often resulted in the removal of a breast which a simple incision would have sufficed to cure.

M. Reclus concludes that, as in both cases we may have marked induration, absence of fluctuation, adhesion of the skin, which may be changed in character, retraction of the nipple, glandular involvement, etc., the only absolutely certain method of diagnosis is the use of the exploring needle. It is evident, of course, though this point is not dwelt upon as it might be, that the presence or history of lactation would give rise to suspicion as to the character of the tumor. Indeed, that circumstance should be almost a sufficient guide to enable the surgeon to avoid the mistakes the writer records. In another series of cases in which the greater volume of the growth, its softness, the condition of the skin, etc., led to the diagnosis of encephaloid, subacute phlegmon or abscess was found, depending in each instance on lactation, and usually following weaning.

LAPAROTOMY IN SUPPURATIVE AND TUBERCULAR PERITONITIS.

At a recent meeting of the Clinical Society of London (*The British Medical Journal*, Nov. 5, 1887), MR. BARWELL reported a case in which during an acute peritonitis following a blow upon the abdomen, he had opened the peritoneal cavity, sponged its lower portion and washed it out with distilled water,

bringing away quantities of flocculent pus. The wound was sewn close without drainage. There was rapid convalescence.

MR. KNAPP reported a case in which the abdomen was opened for a supposed ovarian cyst, and the peritoneum, mesentery, and intestines were found covered with tubercles. The cavity was washed out with warm water. The patient recovered, but had evidence of pulmonary tubercle. He alluded to the remarkable experience of Tait, who claimed uniform success so far as the operation was concerned, with complete cure in 80 per cent. of all cases of tubercular peritonitis.

DR. CLARKE reported a case of ascites with dulness over the left lung, temp. 100.2° F., pulse 120. On opening the abdomen the intestines and peritoneum were found studded with little bodies like boiled tapioca grains. The cavity was well disinfected with a one per cent. carbolic solution. Convalescence was uninterrupted, and in six weeks the patient seemed perfectly well.

MR. TREVES thought most surgeons would prefer to use a drainage tube after these operations. He referred to a record recently published in Germany of 97 cases of draining the abdomen for peritonitis, and to Kussmaul's paper comprising 30 cases, with 6 others subsequently added, making 36 cases with 6 deaths, 2 from the operation, and 4 from general tuberculosis. A discussion as to methods and indications for the operation followed.

PROF. BREISKY reports (*Centralblatt für gesammte Therapie*, June, 1887) a case of operation for supposed ovarian tumor in which wide-spread intestinal tuberculosis was found, as was demonstrated by examination of a small section of the peritoneum. The wound healed by first intention, and the patient improved in general health, although a pulmonary tuberculosis, which had existed prior to the operation, was unaffected by it.

DR. E. CEPPI reported (*Rev. méd. de la Suisse Romande*, May 16, 1887) a case of chronic purulent peritonitis cured by abdominal incision with drainage. The so-called Neisser's gonococci were found in the peritoneal exudation.

BESNIER reported, at a recent meeting of the Paris Society of Medicine, a case of suppurative puerperal peritonitis in which the abscess was encysted. Aspiration, the evacuation of five and a half quarts of pus, iodine and collodion externally, and the free use of tonics, resulted in a cure.

INGUINAL COLOTOMY.

MR. H. W. ALLINGHAM, JR., (*The British Medical Journal*, Oct. 22, 1887) prefers inguinal to lumbar colotomy, for the reasons that the position of the patient is better for the operator, who can find the sigmoid flexure more easily than the colon can be found through the lumbar incision, and for the patient where respiration, especially when the abdomen is distended, is liable to be interfered with by the side position. There is less constitutional disturbance, and less suppuration, which is not infrequent about the muscles and cellular tissue of the back after the lumbar operation. He believes the disturbance of the peritoneum in the former case is no more dangerous than the disturbance of the connective tissue and surrounding parts in the latter. He describes his operative method in detail, laying stress upon the importance of bringing the bowel well out of the wound before stitching it to the walls of the latter by sutures, including only the serous and muscular coats.

A CASE OF ANÆSTHESIA OF THE URINARY TRACT.

DR. FRIEDRICH SCHÆFER reports (*Deutsche med. Wochenschrift*, Oct. 6, 1887, No. 40) the case of a man, aged fifty-four, who, with the exception of a very trifling burning during urination, had none of the so-called diagnostic symptoms of stone. A vesical examination made on account of occasional very slight ardor urinae revealed the presence of a stone the size of a cherry, situated in the fundus of the bladder. Dr. Schæfer proceeded at once, without the use of any anæsthetic or narcotic, to crush and evacuate the stone, the fragments weighing 45 grains, and consisting of uric acid. The patient during the operation laughed and smoked cigarettes. He went home the following day apparently well. Dr. Schæfer believes that, although the individual variations in the sensibility of the urethral and vesical mucous membranes are very great, such absolute insensitiveness during a usually painful operation has not yet been recorded.

 FRACTURE AND DISLOCATION OF THE ASTRAGALUS.

DR. L. A. STIMSON reports (*Annals of Surgery*, November, 1887) a case of injury to the foot resulting from a fall from a third-story window, with the following symptoms:

The left foot and the lower half of the leg were swollen and discolored; the foot was at right angles to the leg, and was capable of some flexion and extension without deviation. A marked prominence was present at the inner side of the ankle, over which the skin was tightly drawn and was livid; it was at first supposed to be the internal malleolus, and the foot seemed to be carried bodily to the outer side; but on palpation the prominence was found to be behind and a little below the malleolus, and to have a curved border running backward and outward. Below this border could be felt a broad surface that was curved backward and inward; in front there was an abrupt depression. The scaphoid was in its normal location with regard to the malleolus, and no depression could be felt behind it in the situation of the head of the astragalus, although the swelling was such that the examination was not deemed very trustworthy. The peroneal tendons were displaced forward, so as to lie upon the outer surface of the external malleolus. The relations of the fifth metatarsal, cuboid, and calcaneum appeared to be normal. The dorsalis pedis artery was beating, but the posterior tibial could not be felt. Reduction of the deformity could not be effected, and an incision was made backward and downward from a point in front of the malleolus. A transverse fracture was found at the junction of the body and neck of the astragalus, the former having been completely dislocated backward and inward. The head of the astragalus was in place. The tendons of the tibialis posticus and the flexor longus digitorum were torn from their sheaths. The posterior tibial artery was pressed backward. The body was removed. The patient died of pneumonia on the ninth day.

In a case of MacCormac's (*Trans. Path. Soc.*, London, 1875), the injury was complicated with fracture of the internal malleolus, which was found afterward to have become ossified with the astragalus. There was the same displacement of the tendons of the posterior tibial and long flexor muscles.

In a case reported by Cheever (*Boston Med. and Surg. Journ.*, 1875, p. 237),

a marked symptom, and one which would be expected to follow the dislocation of the tendon, was the rigid and immovable flexion of the last phalanx of the great toe. In this case tenotomy of the tendo Achillis and of the tendons of the anterior and posterior tibials, the common flexor and the long flexor of the toe, was performed, but reduction was not effected. The patient recovered with a useful foot.

Dr. Stimson thinks that the fracture and dislocation probably occur as a result of external violence acting in the direction of the long axis of the leg along the sloping articular surface of the calcaneum, forcing that bone and the tibia closer together, so that the posterior part of the astragalus is squeezed out from between them.

In a case of this dislocation recorded by Mr. Benjamin Phillips (quoted by Pick) a gentleman, in running, placed his foot in a gutter, so that the toes rested on the further edge and the heel was jammed violently down to the bottom of the gutter, the patient at the same time falling forward.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,

PROFESSOR OF OTOTOLOGY IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE, ETC.

CONTUSED WOUND OF AURICLE.

A girl, thirteen years old, was struck with a piece of rope over her auricle, by a teacher. Intense swelling set in about the wound, which was near the junction of the concha with the posterior wall of the auditory canal. The next day the entrance to the external meatus was almost entirely closed. The treatment consisted in hydropathic dressings, under which the swelling rapidly went down, and the abscess which had been feared, was prevented. (*Universitäts-poliklinik für Ohrenkranke zu Bonn: Archiv für Ohrenheilkunde*, Bd. 25, pp. 76-77, 1887.)

From the same source comes the account of an othæmatoma which had been improperly treated by incisions a year before the clinic had charge of the case. The tumor gradually grew until it took in all the upper concave part of the auricle. Its radical removal was accomplished by first making an incision three centimetres long in the direction of the anthelix, running through a fistula which was found in the tumor. A mass of spongy granulations was removed by means of the sharp spoon. After this two crescentic cuts running from the first incision were made, and a piece of the hypertrophied cartilage was removed, and the edges of the wound joined by means of six sutures, a small opening being left at the lower angle of the wound. Healing followed by first intention, though the edges of the wound were approximated with considerable tension of the sutures. In fourteen days the place formerly occupied by the tumor was marked only by a narrow, smooth cicatrix, and a slight deformity of the cartilage.

ACUTE SUPPURATION OF THE TYMPANUM IN CHRONIC BRIGHT'S DISEASE.

DR. ROOSA, of New York, gives an account of a case with the above title (American Otol. Society, July 19, 1887). A woman, forty-two years old, complained of intense pain in the left ear. She was seen the next day by Dr. Roosa, who found that the patient had been previously affected with a profound non-suppurative catarrh of both ears, with deafness. In two days there was noted a tenderness over the mastoid. Leeches, poulticing, and hot douches, relieved the pain, with varying success until fourteen days elapsed, when all the symptoms about the ear increased in intensity. The temperature, which had been increased, became low. Paracentesis of the membrana tympani was performed by Dr. Emerson, and gave some relief. The symptoms in thirty-six hours grew worse, and the temperature rose to 103.5°. Paracentesis was again performed, without much relief, and finally œdema of the lung set in. (Patient far advanced in chronic Bright's disease.) She died thirty-four days after the first ear symptoms.

The post-mortem examination revealed the fact that the disease was tympanic and not mastoid, verifying the diagnosis previously made by Drs. Roosa and Emerson.

RAPID LOSS OF HEARING IN A CHILD SEVEN YEARS OLD.

DR. A. H. BUCK, of New York, reports a case of the above-named form, in which inherited syphilis was the apparent cause of the disease, and in which the hearing improved markedly after the use of iodide of potassium (American Otol. Society, July 19, 1887). Although the nares and nasopharynx were markedly catarrhal, this was not sufficient in the author's opinion to account for the profound and sudden loss of hearing, which lasted for some months, and improved only after large and continued doses of the drug just named. This was given at first in five grain doses, three times daily, until it reached seventeen grains three times a day. One of the chief instructive features of interest in this case was a circumscribed periostitis, which was demonstrable for a comparatively long period, symmetrically situated in both external auditory canals, at a point corresponding to the osseous floor of the mastoid antra. As late as September 17, 1887, the child's physician reported that the boy could hear nearly as well as ever.

SYPHILITIC DISEASE OF THE LABYRINTH, EXHIBITING REMARKABLE VARIATIONS IN THE DEGREE OF DEAFNESS.

In a man, thirty years old, affected with inherited syphilis, the hearing in the left ear was greatly reduced, being 0 for the watch, and 2' for loud words. In the right ear, he could hear loud words at 20', and the watch on light contact (DR. S. THEOBALD, Amer. Otol. Soc., July 19, 1887). The treatment consisted of biniodide of mercury $\frac{1}{2}$ gr., with iod. potass. gr. ij, thrice daily, and the use of a gargle containing tincture of iodine and iodide of potassium. No great improvement in hearing for words. The mercurial was now increased to $\frac{1}{4}$ gr. The hearing not seeming so well, the biniodide was stopped, and hydrarg. bichlor. gr. $\frac{1}{4}$, with ammoniæ muriatis gr. x, given three times daily. The hearing improved greatly under this in three weeks, and

the watch was heard in the right ear at 2'', and whispered words at 20'. The left ear was not materially improved. In the course of two months, the treatment being kept up, he suddenly became very deaf—as much so as when first seen. In addition to the ammonia and mercury, he was ordered to apply behind and around the ears a twenty per cent. solution of the oleate of mercury. In two months he reported that the treatment had been discontinued, and that his hearing was normal on the right side for words, and for a loud voice 20' in the left ear. There were two more relapses between March and June of this year. The mercurial treatment was carried out, without much apparent effect upon the hearing. This case seems like one of disease of the middle ear, and to demand, therefore, more direct treatment of the nasopharynx and Eustachian tube.

AURAL VERTIGO.

DR. GELLÉ, of Paris, has recently written an elaborate and highly valuable article on this subject, based on the observation of three cases, and their autopsies (*Annales des Maladies de l'Oreille, etc.*, Sept. 1887). While admitting a neuropathic element in these, as in all cases of Ménière's disease, this writer believes largely in the mechanical element in aural vertigo. This view is substantiated by the fact that in all of these cases one of the fenestræ of the two with which the labyrinth is supplied was rendered immovable, either by a fixation of the foot plate of the stirrup in the oval window, or by the stopping up of the round window. As these fenestræ act the part of safety-valves, equalizing the pressure made upon the labyrinth fluid by sound waves and other impulses upon their surfaces, if one is stopped up or ankylosed, pressure through the other makes an undue impression on the terminal filaments of the auditory nerve, and excites vertigo.

Another very important element in the genesis of aural vertigo in its different forms, is the condition of reflex hyperæsthesia and hyperexcitability in which the acoustic nerve is brought and maintained, in consequence of the repetition of irritation and functional excitations, like deglutition, etc.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF
J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

NEW LITERATURE.

In October was issued from Paris the first number of *Archives de Laryngologie, de Rhinologie et des maladies des premières voies respiratoires et digestives*, edited by DR. ALBERT RUAUULT, in charge of the laryngologic clinic of the Institution nationale des Sourds-Muets of Paris, with the scientific concurrence of PROFESSORS BOUCHARD, CORNIL, VERNEUIL, TRELAT, and thirty-one other

physicians and surgeons of hospitals and members of the teaching faculties of Paris. It differs from the two older laryngological journals of France in excluding otology. Its scope comprises diseases of the nose, nasal cavities, frontal sinus, nasopharyngeal cavity, pharynx, soft palate, tonsils, mouth, and appendages, larynx, œsophagus, trachea, and neck, which it proposes to discuss, not only in their special relations, but also in their relations to general medicine and surgery. No intimation is given as to the frequency of publication. The initial number contains an original article by Dr. F. Verchère, on the operative indications in certain recurrent tumors of the nasal and post-nasal cavities; a critical review by Dr. P. Le Gendre, on antiseptic treatments for diphtheria; a partial report of the Laryngological Section of the recent session at Washington of the International Medical Congress; and an analysis of some recent French and other publications on the subjects to which it is devoted. We greet the *Archives* with cordial welcome.

LEUCOPLAKIA BUCCALIS.

DR. W. C. GLASGOW, of St. Louis, has reported (*New York Med. Journ.*, Oct. 22, 1887, p. 461) an instance of recovery in a male aged forty-eight years, under local applications of iodine and tonics internally. The origin of the disease was attributed to excessive tobacco-smoking, and not to syphilis, to which, on insufficient grounds, it had been ascribed by other practitioners.

STRICTURE OF THE ŒSOPHAGUS FROM SIMPLE ULCER.

M. DEBOVE has been able, by an autopsy, to confirm his view that stricture may be due to cicatrization of simple ulcer (*Concours Méd.*, August 20, 1887).

GASTROTOMY IN REMOVAL OF FOREIGN BODY FROM THE ŒSOPHAGUS.

DR. WM. T. BULL, of New York, reports (*The Medical News*, Oct. 21, 1887, p. 484) the successful performance of gastrotomy for the removal of a peach-stone impacted in the œsophagus, thirteen inches from the teeth. A median incision, three inches in length, extending from the level of the ninth costal cartilage to a point two inches above the umbilicus; an incision one inch and a quarter into the stomach; the insertion of the index finger into the œsophagus until it reached the foreign body passed down from above by a bougie; the passage of a slender bougie through the stomach and out through the mouth; the attachment of a piece of sponge to the lower extremity of this bougie, and the withdrawal of the bougie by the mouth bringing up the foreign body, comprised the steps of this interesting and unique procedure. Invagination of the abdominal walls and of the stomach by pressure with the fist permitted access of the extended forefinger into the œsophagus, without introduction of the hand into the cavity of the abdomen. For instructive, important technical details, the original must be consulted.

DETACHMENT OF POST-NASAL POLYPI.

VICTOR LANGE, of Copenhagen (*Deutsch. med. Woch.*, 1887), reports several cases in which the pedicle was severed by a tug with a blunt hook passed through the nose; the tumor being fixed by the forefinger passed into the pharynx.

CURE OF RECURRENT NASOPHARYNGEAL TUMOR BY ELECTROLYSIS.

DR. R. F. LINCOLN, of New York, has reported (*New York Med. Journ.* Oct. 22, 1887) an additional success in this line of treatment; the case being one of repeated recurrence after several surgical operations through the mouth and through the cheek.

OCCLUSION OF THE POSTERIOR NARES.

DR. A. W. MAC COY, in a comparative study of some of the methods best adapted to the relief of occlusion of the posterior nares (*New York Med. Journ.*, Oct. 22, 1887, p. 457), extols a flexible sheathed applicator, devised by him to facilitate the use of caustics. It resembles a class of instruments used by Elsberg and others, some twenty-five years ago, but long since discarded. There is some improved mechanism in Mac Coy's tube which will commend itself to those who require such covers to their caustic points.

ON THE TREATMENT OF ATROPHIC RHINITIS BY APPLICATIONS OF THE GALVANIC CURRENT.

DR. D. BRYSON DELAVAN speaks (*New York Med. Journ.*, Oct. 22, 1887) quite favorably of electricity as a therapeutic agent, the results of which he has not seen equalled by any other method. As intranasal electrode he uses a copper wire protected by a pledget of absorbent cotton saturated with lukewarm water, as external electrode a flat sponge at the nape of the neck; the intranasal one being connected with the negative pole of the continuous battery current, the strength of which varies from four to seven milliampères during a setting of from five to twelve minutes, or until a serous discharge occurs.

RECURRENT HEMORRHAGE OF THE VOCAL BAND.

DR. C. E. BEAN, of St. Paul, reports (*New York Med. Journ.*, Sept. 24, 1887, p. 351) a case under his care for several years recurring suddenly after violent cough excited by inspiration of irritant substances, apparently overcome finally under the administration of extract of ergot, half a grain three times a day.

LEPROSY OF THE LARYNX.

SIR MORELL MACKENZIE has commenced (*Journal of Laryngology and Rhinology*, Oct. 1887) an entertaining and instructive "Report upon Leprosy in Europe, particularly as it affects the Air-passages, the results of some studies made in Spain, in Madeira, and in Norway during the past few years." At his visit to the Hospital de San Lazaro, in Seville, in 1880, there were 29 male patients, 9 of whom had well-marked throat affections, as had 2 out of 10 females, the peculiar features of which are tabulated. In one instance the throat was affected from the beginning of the disease, in the others at periods varying from two to eleven years. One constant feature was enlargement of the epiglottis. In one case of ten years' standing the epiglottis was entirely destroyed, an exceptional occurrence. In one or two others there were ulcers on it, usually at the edge and toward the side. Thickening of the arytenoid cartilages was almost universal. In all the whole upper orifice of the larynx was thickened, so as to narrow greatly the aperture. In four cases the uvula

was entirely eaten away; in one it was partially destroyed, and in three it was thickened and enlarged. In five the pharynx was extensively ulcerated. In one tubercles were observed on the tongue. In the Lazaretto at Funchal, visited in 1881, there were four males and four females with throat implications, the general features being almost identical with those observed in the lazarinis of Seville.

CARCINOMA OF THE LARYNX.

DR. H. A. JOHNSON, of Chicago (*New York Med. Journ.*, Sept. 24, 1887, p. 349), reports five cases, all males, more than forty-four years of age. In three the disease occupied the right side. In but one was there a history of cancer in the family. In one only the disease seemed to be secondary as an extension of external cancer. In one only was there evidence of infection of the lymphatics from the larynx. In one only any trouble, some hemorrhage. In none was there marked pain. In three life was prolonged, apparently three, five, and eight months, respectively, by tracheotomy.

THE USE OF THE FINGER IN DISLODGING AN IMPACTED BODY IN THE LARYNX.

DR. J. FORD THOMPSON, of Washington, had occasion to perform tracheotomy to remove a cockle-bur impacted in the larynx of a lad of sixteen (*Journ. Amer. Med. Assoc.*, Oct. 1, 1887, p. 432), and failing to detect and grasp the body with tracheal forceps, he inserted an index finger into the larynx, and with this additional aid was able to dislodge the body, push it upward and extract it through the mouth.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

PROFESSOR OF DERMATOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

AND

HENRY W. STELWAGON, M.D.,

PHYSICIAN TO THE PHILADELPHIA DISPENSARY FOR SKIN DISEASES.

SALT IN DERMAL HYGIENE AND THERAPEUTICS.

Much that is interesting, as well as instructive, is to be found in DR. PIFFARD's paper (*Journal of Cutaneous and Genito-urinary Diseases*, November, 1887) on salt in cutaneous hygiene and medication. Baths of five per cent. solution were found as a cleansing agent fully equal, and probably superior, to the usual soap and water bath. "It removed the bodily odors and exuvie from the skin as readily as soap did, and far more thoroughly. Further, the axillæ and other hairy parts remained sweet and clean, and free from odor for a longer period than would have been the case after the most thorough

use of soap." Additionally to these properties, the skin has a soft and supple feel, more marked and more pleasant than the effects of any other form of bath. Therapeutically, the writer has found in acute moist eczema that a one-half per cent. bath is, for cleansing purposes, equal to soap and water, and without the usual aggravating effect of the latter. In subacute eczema, psoriasis, furunculosis, and similar diseases, the five per cent. bath proved a source of comfort to the patient, and possessed therapeutic properties as well.

The white salt obtained from the natural brine wells in the interior is preferred; it is purer and less expensive than sea salt, dissolves more readily, and the bath is free from the disagreeable scum present when the latter is used.

COCAINE IN SKIN DISEASES.

LUSTGARTEN (*Wiener med. Wochenschrift*, No. 12, 1887) states that where the epidermis is intact cocaine applied to the skin is not absorbed, but where the horny layer is thin or absent it acts. A two per cent. solution used several times daily allays the itching in acute and subacute eczema, being especially valuable in eczema of the anus and genital regions of both sexes. In the form of ointment he employs oleate of cocaine 6 grains to 15 grains; lanolin $4\frac{1}{2}$ drachms; olive oil $\frac{1}{2}$ drachm; followed by the use of a dusting powder. In pruritus ani suppositories may be made containing $\frac{3}{4}$ of a grain of oleate of cocaine. The author cautions against the toxic effects of cocaine, three cases of this kind having been encountered when only $\frac{3}{4}$ of a grain had been used.

ON THE ADVANTAGES OF A COMPOUND SALICYLATED PLASTER.

KLOTZ (*New York Medical Journal*, September 17, 1887), in pursuance of a practice suggested by Prof. Pick, has for the past several years used with great advantage a salicylated soap plaster. After experimental trials of several formulæ the following proved the most practical: Emplastri diachyli simplic. emplastri saponati, aa 40 parts, petrolati, 15 parts, acid. salicylici, 5 parts. The addition of the petroleum ointment was made to render the plaster softer and more pliable. It unfortunately lacks marked adhesive qualities and requires, therefore, to be kept in place with a bandage. The plaster is inexpensive, one ounce spreading about one square foot. It acts as an antiseptic, forms an efficient protective covering to diseased skin, preventing crust formation; on a dry surface acting similarly, but in many respects more efficiently, to a rubber bandage, keeping the parts soft and pliable. The plaster finds its widest application in eczema, being useful in every form of this disease except the most acute stages. It acts admirably in fissured eczema of the fingers, in eczema of the forearm and legs; in ulcer of the legs, after healthy granulation has been excited, and, in fact, in granulating wounds resulting from any cause as burns, dermatitis, caustics, etc. The plaster is changed at intervals of one or several days according to the necessities of the case.

A NEW TREATMENT FOR OBSTINATELY RECURRING ECZEMA.

In the *British Medical Journal* of July 8, 1887, CROCKER states his belief that many of the obstinately recurring cases of eczema are due to a vasomotor

neurosis, and that in the management of such cases he has good results from counter-irritation over the vasomotor centres. For this purpose mustard plasters, or mustard leaves, were employed. In no case did eczema develop upon the site of the plaster. The position of the counter-irritation varied, depending upon the part affected; behind the ears for the face, on the nape of the neck for face and forearms, over the lumbar enlargement for the genitalia and legs, and over the large sciatic nerve on the hip when but the one leg is affected. In many instances marked benefit followed, especially as regards the itching; and in some cases judicious repetition of the counter-irritation brought about permanent relief.

TREATMENT OF PSORIASIS WITH IODIDE OF POTASSIUM.

HASLUND (*Viertelj. f. Derm. u. Syph.*, 3te Heft, 1887) is of the opinion that in the treatment of psoriasis iodide of potassium, given in increasing doses and for a long time, is quite equal, if not superior, to arsenic. He begins with a tablespoonful dose four times a day of a solution of one to twenty parts (dose twelve grains). The amount is increased every third day until the patient is taking one hundred and fifty grains daily. The strength is then increased by thirty grains every third day. When the stronger solutions are being used the doses may be given five or six times a day, freely diluted. About six hundred grains a day is the average amount administered, although as much as seven hundred and fifty grains a day have been given. The author reports fifty cases treated by this method; forty were cured, four relieved, and six remained uninfluenced by the remedy.

The average duration of treatment was seven weeks, improvement usually manifesting itself during the fourth or fifth week, after which the cure generally takes place rapidly. In most cases the large dosage was well tolerated, though at the beginning, and while the larger quantities were being taken, iodism, as shown by derangement of the stomach, diarrhoea, coryza and headache, was encountered, disappearing on a reduction of the amount of the drug. Most of the patients increased in weight and improved in general health under the treatment; the appetite remained good and the bowels were unaffected. The drug apparently exerted no effect on the general glandular system, testes, ovaries or mammary glands. The rapidity of the pulse was always increased under large doses, the rate generally reaching one hundred during the first two weeks and then gradually mounting to one hundred and thirty or forty. In nearly all instances increased flow of urine was noted. In a few cases salivation and transitory albuminuria, and in one instance, after large doses, dangerous heart failure, were observed.

PHLYCTÆNOSIS AGGREGATA.

G. BEHREND (*Berlin. klin. Wochenschrift*, August 15, 1887) presents a case (of which he has seen seven examples) of an undescribed disease of the skin, which he designates "phlyctænosis aggregata." The eruption is characterized by groups of vesicles, the size of a pin-head, and sometimes situated so closely that they coalesce. The vesicles are preceded by an intense redness of the skin, and are accompanied with violent itching, so that they are in-

variably scratched, and the patient deprived of sleep. Groups of small, quite flat blood-crusts, followed by pigment spots are observed. Recurrences of the eruption occur without cessation on various regions of the body, the disease pursuing its course in this manner until the skin has taken on a deep dark-brown coloration. In cases of this kind, where the disease has lasted for a long period, there exist groups of vesicles seated upon a dark pigmented skin and blood-crusts, rounded, striated in form. The author states that the picture is a striking one, and that it only resembles two diseases, namely, herpes and vesicular eczema. Arsenic has been found an absolutely sure remedy; after the patient has taken it for two or three days, the eruption and itching disappear completely, but return as soon as the remedy is discontinued, and this is the usual behavior of the disease. Out of the seven cases only one positive cure had been observed. [The disease has points in common with vesicular dermatitis herpetiformis, and it is not improbable that the diseases are the same, but they differ in the fact that Behrend's disease is in all cases quickly amenable to arsenic, which is not the case in dermatitis herpetiformis.—Eds.]

SOME OBSERVATIONS UPON THE THERAPY OF LEPROSY.

Based upon the parasitic view of the disease, UNNA (*Journal of Cutaneous and Genito-urinary Diseases*, October, 1887) has been employing such remedial applications as chrysarobin, pyrogallic acid, resorcin, and ichthyol, for the destruction of the cutaneous lesions, and with encouraging results. The following formulæ are thus recommended, exercising due care, of course, that toxic effects from absorption do not occur: R.—Chrysarobin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts. R.—Ac. pyrogallici, ichthyol. āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts. In women and children, and in others in whom the skin is delicate: R.—Resorcin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ointment, 100 parts; or, R.—Ichthyol, 10 parts; ac. salicylici, 2 parts; ointment, 100 parts. The following compound ointment, containing oxide of zinc, is one of the mildest: R.—Chrysarobin, ichthyol, āā 5 parts; ac. salicylici, 2 parts; ungt. zinci oxidi, vaseline, āā 50 parts. The oldest lepromata are treated more energetically by means of strong (30 to 50 per cent.) salicylic acid plaster-mulls.

From the prolonged use of the above ointments the writer has observed: "1. A rapid disappearance of those fresh lesions of the skin and hypoderm, which are accompanied by rise of temperature, and resemble urticaria nodosum. This is important, since, from the remains of these nodes, which disappear also spontaneously, though slowly, subsequently indolent lepra nodes are developed. 2. A speedy improvement in the circulation and a disappearance of the swelling of those bluish-red portions of skin which are simply enlarged and deformed, and, though filled with bacilli, do not present any circumscribed nodes. 3. A slow diminution in the size of true collections of lepra nodes, especially noticeable in the smaller and younger ones, less noticeable in very old, almost encapsulated lepromata. 4. A very noticeable improvement in the general condition of the patient, especially in regard to the appetite, muscular weakness, nervous depression, irritability, anemia, etc."

As the author rightly stated, the weak point in this method of treatment is

that involved internal organs are practically uninfluenced, and he suggests, along with the local application, the internal administration of such remedies as chaulmoogra oil, strychnine, salicylate of sodium, and ichthyol.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA.

THE TREATMENT OF UTERINE ATONY BY IODOFORM GAUZE TAMPONS.

DÜHRSEN, assistant in Gusserow's Clinic in Berlin, reports in the *Centralblatt für Gynäkologie*, No. 35, 1887, two cases of uterine atony, with persistent hemorrhage, one following the rapid extraction of a child born in breech presentation, the other caused by weakness of the uterine muscle, in which, after manual extraction of the placenta, all efforts to check hemorrhage failed until the uterine cavity was tamponed with 20 per cent. iodoform gauze, in strips. Rapid recovery, without fever, followed. Dührsen advises, in persistent hemorrhage from uterine atony: (1) the emptying of the patient's bladder; (2) a hypodermatic injection of ergotin; (3) uterine massage; (4) hot or ice-cold irrigation with $\frac{1}{10}$ per cent. of salicylic acid solution; (5) tamponing with iodoform gauze. This procedure is not difficult, can be promptly and efficiently carried out, is painless, and antiseptic.

THE SEPARATION, IN POINT OF TIME, OF TURNING AND EXTRACTION.

DOHRN, in the *Zeitschrift für Geburtshilfe und Gynäkologie*, Band xiv., Heft 1, considers the danger to foetal life of transverse positions and partial escape of liquor amnii to be overrated when the mother is recumbent, and in competent care. Of 903 transverse presentations 23 foetal deaths resulted from premature loss of liquor amnii, and these after intervals of several hours. Unless uterine rupture threatened, he would perform version when the os uteri was sufficiently dilated to admit the hand, and not before. He believes, however, that the foetal life is less endangered by spontaneous expulsion after version than by extraction.

This opinion is based upon his study of 842 cases in which spontaneous breech presentation occurred, with foetal mortality of 49 per cent., and 5592 cases in which version and extraction were performed, foetal mortality of 57 per cent. The reason for this difference lies in the fact that when version and extraction are performed the foetus is often born in a position and after a rotation different from that which the natural mechanism would have employed, in spontaneous evolution of breech presentation. When the operator only assists the expulsion of the foetus, the coaptation of the foetus to the parturient canal is natural, and in its results more successful than operative delivery.

Dohrn concludes that (1) version should only be performed when the os is fully dilated, except in strenuous need; (2) extraction should be performed only for a definite indication; the interests of mother and child are best secured by spontaneous expulsion of the fœtus. He illustrates his second point by 152 cases of version and extraction, fœtal mortality 22; in 29 cases after version the expulsion of the fœtus was left to nature, birth occurred in from one-fourth to five-fourths hour, mortality none.

A CASE OF PRIMITIVE FACE PRESENTATION.

OLIVIER reports, in the *Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 8, 1887, the case of a primipara, with normal pelvis, in whom palpation and vaginal examination demonstrated a face presentation before labor began. Schatz's manœuvre for altering the position of the head was tried without result. The rotation of the chin anteriorly was tardy, and the right hand of the operator was carried deeply into the pelvis behind the chin, it was then turned transversely, and the left blade of Tarnier's forceps was carried posteriorly and to the left; the right blade was then introduced and the forceps locked. Traction of twenty-five minutes' duration sufficed to rotate the chin beneath the symphysis. The child was resuscitated, but lived only an hour. The head of the infant was very large, and dolichocephalic.

It was found that the child's father had been born in face presentation, and that his skull, in adult life, was markedly dolichocephalic. This type had been so pronounced in his infant life that it outweighed the malformation caused by the abnormal presentation and birth, and Olivier suggests hereditary dolichocephaly as a probable cause of primitive face presentation in this case.

BASIOTRIPTY.

It is not strange that the revival and improvement of the Cæsarean section should bring to the front the advocates of craniotomy, or basiotripsy, as the French style it. In the *Archives de Tocologie* of August 30, 1887, PINARD is reported, in a clinical lecture, in which he presented a primipara upon whom he had performed this operation, the indication being a contracted pelvis (conjugata vera 8 centimetres, or 3.12 inches), and shoulder presentation. The instrument employed was Tarnier's basiotribe, which was used after version had been performed. The efforts at extraction had killed the child before basiotripsy was undertaken.

The point of interest in Pinard's lecture is his statement of the results of this operation. Including himself, he reports the statistics of 7 operators, in as many different maternities. The greatest number of cases is his own; and in these cases and the others, 49 in all, he reports a maternal mortality of nil! 100 per cent. of recoveries is certainly a most remarkable claim for any serious procedure. Pinard compares Säger's operation unfavorably with basiotripsy, but when we remember that not only the life of the mother, but also that of the fœtus should be saved by the modified Cæsarean section, his comparison loses much of its force. It is not too much to say that in the near future the success of the modified Cæsarean section will equal that of ovariectomy, and the saving of two lives by this procedure renders it immeasurably superior to any form of craniotomy.

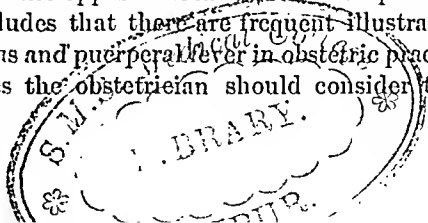
THE INFECTION OF PUERPERAL WOUNDS.

BUMM, privat docent in Würzburg, reviews the literature of the subject in the *Centralblatt für Bacteriologie und Parasitenkunde*, Band II., No. 12, especially the recent articles of GUSSEROW (*Arch. f. Gyn.*, 1887, xxv. p. 169) and WINCKEL (*Verh. der deutschen Gesellschaft für Gyn.*, I. Congress, p. 78). Gusserow reports numerous cases of erysipelas occurring in puerperal women in whom septic infection did not occur. In ten other cases erysipelas took its rise from septic processes already established in the genitalia, the circumstances pointing to a causal relation between the septic wounds and the erysipelas. Gusserow extended his investigations to experiments upon animals, in which he injected the streptococcus of erysipelas into the serous cavities of rabbits, without result. He concluded that erysipelas does not produce sepsis or puerperal fever.

Winckel came to quite different conclusions, regarding the virus of erysipelas as one of the most active of puerperal poisons (*THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES*, October, 1887, p. 604).

From the standpoint of the bacteriologist, Bumm considers the real question at issue to be, whether we have in erysipelas and puerperal fever two different varieties of streptococci, one of which always attacks the superficial lymphatics, producing erysipelas, while the other produces invariably suppuration, or whether the two streptococci are identical, producing different effects as the mode and extent of their inoculation vary. Neither Gusserow nor Winckel has settled this point. Morphologically and in their behavior in cultures, the streptococci of pus and of erysipelas are identical. Doléris, Kränse, Rosenbach, Passet, Hoffa, Biondi, de Simone, Metschanikoff, Hajek, von Eiselsberg, and von Noorden have not been able by experiments upon animals to demonstrate invariable and positive differences between them. Regarding rabbits, both streptococci cause in them typical erysipelas; but different animals behave so differently toward the same germ, that results obtained by such experiments are not conclusive in the case of man. In the absence of a species more closely allied to man, we must await the developments of our knowledge from human pathology. The most recent bacteriological studies make a separation of the two germs very improbable, the connecting link in the effects which they produce being those forms of infection beginning as erysipelas and ending in suppuration.

Bumm adduces the case of a puerperal woman, whose nipples were excoriated, who was attacked on the sixth day after confinement by erysipelas in the right breast, which spread to the clavicle and axilla, without suppuration. The streptococci of erysipelas were found in the lymphatics in this case. On the eighth day, while the erysipelas just described was in full progress, the left breast was attacked by inflammation, which went on to suppuration. The pus which was formed in the cellular spaces of the connective tissue of the gland, contained chain bacteria, which could not be distinguished by sight from those of the opposite breast, and which produced erysipelas in rabbits. Bumm concludes that there are frequent illustrations of the relationship between erysipelas and puerperal fever in obstetric practice, and that for all practical purposes the obstetrician should consider them identical, and act upon this belief.



PUERPERAL NEURITIS.

MÖBIUS, in the *Münchener medicinische Wochenschrift*, No. 9; 1887, compares this affection to toxic paralyses. The terminal filaments of the median or ulnar nerves, or of both, are affected in both their motor and sensory portions. The disease often attacks both the hands, very frequently the right, probably because it is more constantly used. The affection begins during the puerperium, or a week afterward, develops suddenly, sometimes after violent pain, and endures for varying periods. Recovery is the rule; recovery with impaired innervation the exception. The result is influenced by the severity or mildness of the puerperal diseases commonly found.

In regard to localization, Möbius reports one case of paralysis of muscles of the shoulder; another of implication of the brachial plexus. Paralysis of the lower extremities following parturition is the direct result of inflammatory processes in the connective tissue of the pelvis. Puerperal myelitis bears the same relation to puerperal neuritis that saturnine encephalopathy does to the ordinary paralysis of the muscles of the arm from lead poisoning.

A CASE OF PUERPERAL HEMIPLEGIA

SLOAN reported, at a meeting of the Glasgow Obstetrical Society, the case of a puerperal patient in whom hemiplegia began the fifth day after confinement, commencing with defective articulation, absence of convulsions, albuminuria or cardiac disease, complete unconsciousness, and a temperature not above 100° F. The treatment was by cardiac tonics and ammonia. Recovery ensued in twenty-five days. The diagnosis was embolism of the anterior branch of the left cerebral artery, founded on the patient's early age, thirty; the incompleteness of the hemorrhage; the gradual mode of onset; incompleteness of the paralysis and absence of convulsions and coma; together with the sluggish circulation and readily coagulable condition of the blood.—*Edinburgh Medical Journal*, September, 1887.

EXTRAUTERINE PREGNANCY; OPERATION; RECOVERY.

ROWAN, of Melbourne, reports the case of a woman, aged thirty, pregnant the third time, who was brought to him with a history of severe paroxysmal abdominal pain, hemorrhage from the vagina, impaired general health, and the presence of an abdominal tumor. A diagnosis of pelvic hæmatocele had been made. The tumor had increased until it reached the umbilicus; the fœtus had been outlined, and the fœtal heart and placental souffle had been heard. About two months before coming to the reporter the fœtus had died. On examination the tumor was found to fill the left iliac and hypogastric regions, and the left side of the pelvis completely; the uterus could be felt on the right side of the tumor, with its cervix still soft and patulous.

Laparotomy was performed under methylene. The amniotic fluid was removed by a trocar and canula, the cyst freely opened, and a fully developed dead fœtus, greatly decomposed, was removed. The cyst was extirpated, with the placenta, bleeding points tied with silk, and hot carbolized solution, 1 to 200, used for irrigation. A glass drainage tube was then inserted to the bottom of Douglas's cul-de-sac, and the wound closed. The cyst cavity was

subsequently irrigated as suppuration occurred during recovery, which was complete in about six weeks.

The operator stated that in a second case he would introduce a drainage tube from below, into Douglas's pouch.—*Australian Med. Journal*, No. 7, 1887.

PUERPERAL RELAXATION OF THE PELVIC LIGAMENTS.

DR. DRIVER, of Cambridge, Massachusetts, in an article in the *Boston Medical and Surgical Journal* of September 15, 1887, concludes, from his observation of 300 cases of parturition, that—

(1) The presence of relaxation depends very much upon the strength of the bony and ligamentous structures of the skeleton—that is, it is more apt to occur in the woman of poor physique.

(2) That age does not determine its presence, at least the degree of it. The age of observed cases ranges from fifteen to forty-four.

(3) It is not constant, but a degree of it is natural at time of labor, and may exist during pregnancy, and even in the early months.

(4) There may be great motion and no lameness or impairment of walking power.

(5) There may be a general degree of motion and great lameness.

(6) Lameness depends upon pathological conditions of the junctions, pubic and sacro-iliac.

(7) Pain at the sacro-iliac junction of one side proves that on that side is the pivotal motion of the ilium on the sacrum. It may occur in non-puerperal females, in sterile and virgins.

(8) Patients may recover from a most serious condition of lameness without treatment.

(9) The most careful treatment, with all the aids that wealth can bring, may not restore firmness to the pelvis.

(10) Many a case of lingering disability after confinement may have been due to this cause, and it is well, when you cannot find out "what is the matter," to test the condition of the pelvic ligaments.

(11) A small degree of relaxation on separation may facilitate delivery, and may be a factor that saves the use of forceps.

The treatment most successful was an abdominal bandage of twilled cotton, five inches wide, with padded perineal bands one inch wide. In some cases cold bathing and massage were added.

CONTRACTED PELVIS; CÆSAREAN SECTION (SÄNGER); RECOVERY.

LEBEDEW, of St. Petersburg, reports the case of a primipara with contracted pelvis, the conjugata vera of which was 8 centimetres ($3\frac{1}{2}$ inches), in whom, thirty hours after labor pains began, the section was made. The relaxed and atonic uterus was compressed by the elastic ligature; its cavity was cleansed with 2 per cent. carbolic acid solution. The uterine muscle and peritoneum were carefully sutured. Secondary hemorrhage from the uterus was obstinate, and uterine atony persisted. Recovery was complicated by embolic pneumonia. The stitches were removed on the twelfth day; mother and child made a good recovery.—*Centralblatt für Gynäkologie*, No. 41, 1887.

EXTRAUTERINE PREGNANCY.

WERTH has recently published a book on *The Anatomy and Operative Treatment of Extrauterine Pregnancy*, in which he considers tubal pregnancy most frequent and interesting. He regards intraligamentous tubal pregnancy as frequent, and cites sixteen cases. Ovarian pregnancy he considers possible, but infrequent; this must be diagnosed by the existence of a distinct sac, which does not communicate with the tube. The participation of other abdominal organs in the formation of the foetal sac, he thinks, occurs rarely. Tubo-abdominal pregnancy can be said to exist only when both peritoneum and tubal mucosa contribute to the placenta. The survival of the foetus after opening of the ovarian or tubal foetal sac is only possible when the circulation of the foetal appendages is not impaired. Rupture of the foetal sac is most frequent in cases springing free from the broad ligament, in both tubal and ovarian pregnancies. In cases of embryos found free in the abdomen, examination will generally disclose the tube or some other point in the uterine appendages as the starting-point of foetal growth. Perished extrauterine embryos are less likely to macerate than intrauterine, because there is much less amniotic fluid in extra- than in intrauterine pregnancy. Werth reports five cases operated upon, with four recoveries.

In one case intratubal abortion occurred, without rupture of the tube, the blood escaping through the fimbriated extremity, forming an intra-abdominal hæmatoma; the patient recovered.

In treatment the child's life must be disregarded. The foetus and appendages must be considered as a malignant growth, and removed.

In intraligamentous pregnancy operations should be undertaken with great caution during an advancing pregnancy. When a mature foetus is living in intraligamentous pregnancy laparotomy is contraindicated.

In the treatment of the placenta, when left behind, Werth had good results from benzoate of sodium, which readily permeates necrotic connective tissue, preventing putrefaction and hardening of the placental tissues.—*Deutsche medicinische Wochenschrift*, October 20, 1887.

TONIC UTERINE CONTRACTION, WITHOUT COMPLETE RETRACTION.

At a meeting of the London Obstetrical Society, on October 5, 1887, Dr. J. MATTHEWS DUNCAN read a paper on this subject, in which he called attention to the occurrence of a rigid, spastic condition of the uterus, especially just after delivery, without complete retraction, and while the uterus has no contents opposing complete retraction or closing. In this state the hard uterus has a globose cavity. He more particularly called attention to the occurrence of hemorrhage from the placental site while the uterus is in this state of firm spastic contraction with incomplete retraction, and mentioned cases. He regarded this hitherto unknown or unrecognized condition as probably affording an explanation of the well-known difference of opinion among obstetric authorities, some asserting the occasional occurrence of hemorrhage after delivery from a hard contracted uterus, some denying it. A similar condition, he believed, occurs very rarely in the unimpregnated uterus.—*Lancet*, October 15, 1887.

GYNECOLOGY.

 UNDER THE CHARGE OF

 HENRY C. COE, M.D., M.R.C.S.,
 OF NEW YORK.

 ON THE VARIOUS MODES OF TREATMENT OF THE WORST CASES OF
 UTERINE FLEXION.

ROUTH (*Ibid.*) pleads for a more prolonged and intelligent use of pessaries before resorting to operative treatment, which he does not regard as entirely successful. His conclusions are as follows: No pessaries should be used as long as evidences of inflammation are present; they should be so fitted as not to press upon the fundus uteri or at the point of flexion. They should be tried for not less than a year before the curability of the case is questioned. Whenever there is obstruction of the canal at the point of flexion an intra-uterine stem is necessary. It should be worn six or eight months. An India rubber steel-spring pessary may be employed if the uterus is firmly adherent; if the adhesions cannot be stretched, oöphorrhaphy may afford relief. Alexander's operation, or hysterorrhaphy, should not be performed if the uterus is considerably enlarged and prolapsed, if there are firm and extensive adhesions, or if there is general relaxation of the ligaments.

 METHODS OF CLEANSING THE PERITONEUM.

TAIT (*Brit. Gyn. Journal*, Aug. 1887), in describing his method of irrigating the peritoneal cavity, refers to a primary and secondary cleansing, the former being employed at the time of the operation, especially when colloid material has escaped into the abdomen, the latter being accomplished by means of a drainage tube. Primary irrigation is effected by siphoning warm water into the abdomen through a trocar of peculiar shape, the stream being directed to different points so as to wash away any foreign material.

In removing blood-clots a more rapid stream is passed through a larger tube introduced into the pelvis. The intestines and peritoneum should at the same time be gently cleansed by means of the finger, or a small sponge. The temperature of the water should be between 103° and 107°; water having a temperature of 120° is invaluable as a hemostatic. Sponges should not be introduced into the cavity if this can be avoided, especially if peritonitis is present, since they not only carry infection, but their use still further irritates the inflamed peritoneum. Oozing from bleeding points can usually be checked by packing the pelvis with sponges, and leaving these *in situ* until after the sutures have been introduced. The fluid that remains after washing out the cavity can be best removed by sucking it up through a drainage tube, by means of an apparatus similar in principle to a common breast-pump.

Irrigation of the peritoneal cavity through a drainage tube is only useful during the first seventy or eighty hours after operation, because the general cavity is early shut off by adhesions. For draining away serum Tait employs

a tube closed at the lower end, really an ordinary test-tube with lateral perforations; it is changed in forty-eight hours for a shorter one of smaller calibre. Mr. Tait summarizes his views on the use of drainage tubes as follows:

1. A tube should be used when there is oozing during the operation, or when secondary hemorrhage is anticipated.
2. It should not be removed until the hemorrhage has ceased.
3. Drainage should always be employed in cases of ruptured cyst, suppuration, and persistent ascites.
4. As the patient advances in years there is more need to resort to drainage.
5. The simplest method of cleansing the peritoneal cavity secondarily is to introduce the water through a drainage-tube. As the intestine offers a natural channel for drainage, aperients should be given as early as the second or third day if there are evidences of peritonitis.

THE DIAGNOSIS AND SEPARATION OF PERITONEAL ADHESIONS AROUND THE DISPLACED UTERUS AND OVARIES.

SCHULTZ (*Zeitschrift f. Geburtsh. u. Gynäkol.*, Bd. xiv., Heft 1) introduces a paper on this subject, with the statement that in most cases of fixation of the retroflexed uterus, the displacement occurs first, the organ being imprisoned in its abnormal position by a subsequent attack of peritonitis. The adhesions can usually be felt by the finger, introduced into the rectum or vagina. In obscure cases the uterine canal may be dilated, and the finger may be introduced to the fundus so as to steady the organ, while the hand over the abdomen is enabled to draw the fundus forward, and thus to estimate the strength of the cicatricial bands. A sound may be substituted for the finger within the rectum, rectal palpation being practised simultaneously. Anesthesia should be employed if the exact amount of mobility cannot be ascertained without it. The bladder and rectum having been emptied, the patient is placed in the lithotomy position, the examiner introduces his fore and middle fingers into the rectum, and presses them against the retroflexed fundus, at the same time resting the elbow of the corresponding arm upon his knee. If the fundus can be elevated as high as the promontory, it can then be grasped by the fingers of the other hand placed upon the abdomen. The site and extensibility of the adhesions can now be discovered; if these are slight, they will give way under the combined force of the two hands, while if they are broader, they can be separated from the uterus by pressure of the external finger-tips.

Imprisoned ovaries may be freed by pressure made through the rectum; but when they are adherent to the posterior surface of the broad ligament, reposition is impossible. The finger within the rectum explores the surface of the prolapsed organ for a free edge, or an interspace between the ovary and its adhesions. If the latter can be found, the finger-tip is gently, but firmly, bored into it, when the adhesions will frequently give way. It may be necessary to repeat the operation before the ovary is completely freed. It must be effected very slowly and cautiously, the operator being especially careful not to make traction or pressure entirely upon the organ itself. The author adds that in several cases in which he practised this method of reposition he never observed any unfavorable symptoms following the operation. Absolute rest

and ice applications are recommended immediately afterward. The uterus and appendages are kept in their normal position by means of a suitable pessary. The dangers of the operation are not great, provided that a careful diagnosis has been made previously in the manner indicated.

PUNCTURE WITH A FINE ASPIRATING-NEEDLE IN THE TREATMENT OF PERIMETRITIS.

HERVOT (*Arch. de Tocologie*, July 30, 1887) describes this operation as follows: After administering an antiseptic vaginal injection, and emptying the patient's bladder, the operator selects a fine needle, about the size of Dieulafoy's No. 2, but twice as long, and plunges it through the fornix vaginae into the most prominent part of the mass of exudation. After the fluid has ceased to flow freely, the puncture is repeated at another point. Suppuration will not follow if the needle is perfectly aseptic. The usual precautions are taken to avoid peritonitis. After reporting in detail a number of successful cases, the author concludes by affirming that aspiration with a capillary needle is always harmless, provided that strict antisepsis is observed, and that it favors the resolution of the exudation, and shortens in a marked manner the duration of the inflammatory process.

FUNCTIONAL AFFECTIONS OF THE UTERUS RESULTING FROM THE MORPHINE-HABIT.

LUTAUD (*Ibid.*), as the result of careful observations made in twenty two cases, during a period of three years, arrives at the following conclusions:

1. Chronic morphinism causes a diminution, or complete suppression, of the menstrual flow.

2. Hence, in cases of menorrhagia due to cancer or fibroid tumor of the uterus, morphine possesses a distinct hemostatic action. The author injects from two and a half to ten grains (!) at a time in cases of carcinoma, obtaining from such large doses not only a complete relief of pain, but a diminution of the hemorrhage and actual prolongation of life.

THE DIAGNOSIS OF COMMENCING EPITHELIOMA OF THE CERVIX.

STRATZ (*Zeitschrift für Geburtshülfe u. Gynäkologie*, Bd. xiii. Heft 1), referring to the good results that have followed operations performed for the cure of cancer of the uterus, states positively: 1. That carcinoma is curable; 2. That the earlier one operates the more probable is the cure. Unfortunately, either the disease is not recognized sufficiently early, or palliative treatment is not adopted until it is too late for a radical operation. The symptoms of commencing epithelioma are rarely so severe as to compel the patient to consult a specialist, hence the family physician is the one who has the most frequent opportunities to observe the disease in its inception. His suspicions should be aroused whenever a woman complains of vague shooting pains, an increase in the menstrual flow, and especially of slight hemorrhage following coition. Since in the beginning a malignant growth cannot be distinguished from an extensive erosion, a piece of the cervix should be excised and examined microscopically. In general, the following peculiarities may be noted on gross inspection as characteristic of malignant disease: The

affected region is sharply separated from the healthy portion, and always occupies a different level. Epitheliomatous nodules are of a light yellow color, and on section they show small, shining, granular spots of a yellowish-white shade.

THE RELATIONS BETWEEN THE UTERINE MUCOSA AND DISEASES OF THE ADNEXA.

CZEMPIN (*Zeitschrift für Geburts. u. Gynäkologie*, Bd. xiii. Heft 2) endeavors in this paper to reverse the ordinary sequence, or to prove that under some circumstances inflammation may spread from the appendages to the uterine mucous membrane. The intimate relation between the endometrium and the lining of the tube is well known, but it is just as rational, he believes, to assume that an inflammatory process may spread backward as forward. The proof of this secondary inflammation of the endometrium is shown by the sudden occurrence of metrorrhagia in connection with chronic inflammation or tumors of the ovaries and tubes, recurrent exudative parametritis, or cicatricial nodules in the broad ligaments, such as form after removal of the appendages. A comparison of the symptoms observed in a series of cases showed that the patients complained of sudden, violent pains in the abdomen or back, followed in from three to eight days by hemorrhage, so severe as to lead the women to consult a physician. On examination, evidences of fresh inflammation of the ovaries, tubes, or parametric tissue were invariably found. Hemorrhage was generally profuse, and was always accompanied by severe pain. The endometrium was usually hypertrophied. The symptoms produced by cicatricial nodules remaining in the parametric tissues after laparotomy are less severe, the pain being less marked than in acute inflammatory processes; still, it is sufficient to convince the patient that she has not been entirely cured by the operation. The hemorrhage under these circumstances recurs at irregular intervals, and is more profuse than the ordinary menstrual flow. The persistence of a pseudo-menstruation after removal of both tubes and ovaries is to be ascribed not to the "habit" of menstruation, but to the presence of exudations or indurations in the pelvic tissues, which cause congestion of the uterus, and hence hypertrophy of the endometrium. The sensitive nodules can often be felt in these cases. Hemorrhage from the uterus in connection with disease of the appendages may be explained in general by supposing either that the presence of chronic oöphoritis, pyosalpinx, or morbid growths of the appendages causes chronic congestion, and hence endometritis fungosa, just as in the case of uterine fibroids, or that acute or subacute inflammation of the appendages produces an acute hyperemia of the mucous membrane, which recurs continually by reason of the constant irritation of the diseased tubes and ovaries. The author, in concluding, acknowledges that a careful study of the endometrium in connection with various affections of the other pelvic organs is necessary before positive deductions can be made. [It must be confessed that the arguments advanced by the writer do not throw much light upon the question of sequence in coexisting disease of the uterus and its adnexa. The explanation of recurring hemorrhages after removal of both tubes and ovaries seems plausible, especially when considered in connection with the fact of persistent pain after laparotomy.]

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
On Guanin Gout in the Hog, and its Relations to the Sodium Urate Gout of Man. By WALTER MENDELSON, M.D.	109
The Dyspnœa of Bronchitis; its Causation and the Influence of Nitrites upon it. By THOMAS R. FRASER, M.D., F.R.S., F.R.C.P.E.	122
On the Diagnosis of Dermatitis Herpetiformis. By LOUIS A. DUHRING, M.D.	135
Double Congenital Deformity of the Tibia. By JAMES K. YOUNG, M.D.	145
Six Self-inflicted Cæsarean Operations, with Recovery in Five Cases. By ROBERT P. HARRIS, A.M., M.D.	150

REVIEWS.

A System of Gynecology by American Authors. Edited by Matthew D. Mann, A.M., M.D.	159
Treatise on Human Physiology, for the Use of Students and Practitioners of Medicine. By Henry C. Chapman, M.D.	167
Handbook of Gynecological Operations. By Alban H. G. Doran, F.R.C.S.	169
Trattato della Difteria per il Cav. Dott. Vincenzo Cozzolino	170
Illustrations of Unconscious Memory in Disease, including a Theory of Alteratives. By Charles Creighton, M.D.	172
Physiologie de la Voix et du Chant. Hygiène du Chanteur. Par A. Gouguenheim et M. Lermoyez.	173
Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S.	174
Lectures on the Surgical Disorders of the Urinary Organs. By Reginald Harrison, F.R.C.S.	177
The Principles of Antiseptic Methods Applied to Obstetric Practice. By Dr. Paul Bar	177
Intubation of the Larynx. By A. Jacobi, Joseph O'Dwyer, Francis Huber, Dillon Brown, W. P. Northrup, J. H. Hance, and A. Caillé.	178

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
Bergeon's Method	179	Cholera Infantum	181
Guaiacol in Phthisis	179	Naphtalin in Infantile Diarrhœa	181
Amylenhydrate as a Sleep-producer	180	Antipyrin in Hæmoptysis of Various Origin	181
Strychnine in Alcoholism	180	Treatment of Syphilis by Deep Injections of the Oxyphenate of Mercury	181
Benzoate of Sodium in Uræmia	180		
The Milk Regimen in Renal Diseases	180		

MEDICINE.

	PAGE		PAGE
The Cure of Biermer's Pernicious Anæmia by the Expulsion of Bothriocephalus Latus	182	Obstructive Mitral Murmurs	186
Pneumothorax	183	The Diagnosis of Carcinoma of the Stomach	188
Cases of Pneumothorax in Persons Apparently Healthy	185	Diet in Albuminuria	189
		The Nature of the Fat Crystals in Feces	190

SURGERY.

Cancer and Cancerous Diseases	191	Gangrenous Abscess of the Lung; Puncture; Drainage; Recovery	196
Chian Turpentine in the Treatment of Cancer	192	Surgery of the Kidneys	196
The Gonococcus	192	Syphilitic Dactylitis	198
The Relation of Syphilis to Rickets	192	Resection of the Wrist-joint	198
Intubation of the Larynx in Croup	193	Subperiosteal Cuneiform Resection of the Tibia	198
The Surgical Treatment of Goitre	194	Early Astragalotomy in Fungous Synovitis of the Tibio-tarsal Joint	199
Retro-sternal Abscess with Resection of the Manubrium	195		

OPHTHALMOLOGY.

Strabismus Operations	199	Retinitis Brightii without Albuminuria	201
The Examination of Color-blindness in Railway Employés	200	On the Extraction of the Anterior Capsule in Cataract Operations	201
Rare Cases of Nystagmus	200	On Cataract Operations	202
Hypopyon and Dental Caries	200	Removal of Pterygium	202
Eserine in Detachment of the Retina	200		

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

On the Causes which Prevent Removal of the Tube in Children Tracheotomized for Diphtheria	202	Laryngectomy	205
The Transformation of Laryngeal Papilloma into Carcinoma	203	The Ultimate Results of Extirpation of the Larynx for Carcinoma	205
		Morbid Growths of the Larynx	206

OBSTETRICS.

The Pathology and Treatment of Abortion	207	The Treatment of Retention of the Chorion	210
Occipito-posterior Positions	208	A Fatal Case of Tetanus Uteri	211
Post-mortem Parturition	208	A Case of Uræmic Amaurosis in the Puerperal State	211
A Successful Laparo-elytotomy for Contracted Pelvis	208	Irreducible Retroflexion of the Gravid Uterus; Osteomalacia; Extirpation of the Uterus; Recovery	212
Operative Treatment of Extrauterine Pregnancy	209	Corrosive Sublimato Poisoning	213

GYNECOLOGY.

Fungous Endometritis	213	Case of Primary Tuberculosis of the Fallopian Tube	216
The Treatment of Advanced Epithelioma of the Uterus by Terebene	214	The Frequency of Pathological Conditions of the Fallopian Tubes	217
The Buried Suture in the Operation for Closure of Vesico-vaginal Fistula	215	The Results of Supra-vaginal Hysterectomy	217
Observations on Pelvic Cellulitis	215	Hydrocele in the Female	218
The Relation of Gonorrhœa to Generation	216		

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

FEBRUARY, 1888.

ON GUANIN GOUT IN THE HOG, AND ITS RELATIONS TO
THE SODIUM URATE GOUT OF MAN.

A CONTRIBUTION TO COMPARATIVE PATHOLOGY FROM THE LABORATORY
OF THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS
AND SURGEONS, NEW YORK.

BY WALTER MENDELSON, M.D.,
PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-DOOR DEPARTMENT, NEW YORK.

THE constantly increasing importance which is being attached to the study of comparative pathology has induced me to lay this memoir on a little known disease of one of our domestic animals, before physicians, rather than before veterinarians, for the reason that I think it may help to cast some light upon a disease of the human animal which, although very common, is still one of the most obscure in its ultimate pathology as any the physician is called upon to treat.

HISTORICAL.—Some twenty years ago Virchow¹ reported having found in a piece of ham small white concretions, which had been mistaken for trichinæ, but which, on investigation, gave the reactions for guanin. These deposits replaced the muscle fibres, and had, as seen at their edges, a finely radiate, crystalline structure. They dissolved in acids and alkalis without effervescence. A little later² he reported another case, in which the concretions were found in the cartilages and ligaments of the knee-joint. In tracing the history of this case,

¹ Ueber Concretionen im Schweinefleisch welche wahrscheinlich aus Guanin bestehen. Virchow's Archiv, vol. 35 (1866), p. 359.

² Die Guanin Gicht der Schweine. Virchow's Archiv, vol. 36 (1866), p. 147.

he ascertained that the farmer who killed the pigs described the existence in their livers of certain yellow spots, which, it seems, were not encapsulated, but, from the description, must have been interstitial. Virchow himself did not see the livers, but concluded that the spots were probably also due to guanin.

Two years later (1868) the late Prof. Roloff¹ reported finding similar deposits. Their finely linear structure led him to believe that they were composed of bacilli, which he thought might have penetrated the tissues after the animal's death. No chemical tests were applied, but even without these such a mistake would in the present light of bacteriological technique be impossible.

These scanty references to the subject are all I have been able to find, and, in proof of the rarity of the condition, I may mention that Ebstein,² in his work on gout, states that Prof. Schutz, of the Veterinary School of Berlin, informed him that he had never seen a case, though he had, for years, been on the lookout for it, and that his only acquaintance with the disease was from Virchow's specimens.

It will be seen, therefore, that our knowledge of this pathological condition is extremely meagre, and it seemed, consequently, worth while, since the opportunity offered, to make an investigation regarding its anatomy, and to ascertain what relationship, if any, it bore to the urate gout of man.

CHEMICAL.—Before proceeding further, it seems appropriate to give an outline of the chemical properties, etc., of guanin, since to most of our readers this will probably be a but little known substance.

Guanin ($C_5H_5N_5O$) is one of the nitrogenous crystalline bodies resulting from tissue metamorphosis. Its chemical relation to the other members of the series is as follows (Gorup-Besanez):³

Guanin	$C_5H_5N_5O$
Hypoxanthin	$C_5H_4N_4O$
Xanthin	$C_5H_4N_4O_2$
Uric acid	$C_5H_4N_4O_3$

It was first discovered by Unger in 1844 in Peruvian guano, its presence there being accounted for by the food of the birds of whose droppings guano is formed, for the iridescent silvery material beneath the scales of fish is composed probably wholly of guanin-lime.⁴ It does not exist in the fresh dung of herbivorous birds, but Hoppe-Seyler was able to find it in the feces of a heron fed on fish. In the animal kingdom its distribution is quite wide, for it has been found in the excrement of spiders, in the green organ of the river crab, in the Bojanian

¹ Ueber eigenthümliche Knötchen im Schweinefleisch. Virchow's Archiv, vol. 43 (1868), p. 524.

² Die Natur und Behandlung der Gicht, p. 51, Wiesbaden, 1882.

³ Lehrbuch der physiologischen Chemie. 3d ed., 1874.

⁴ Voit, Zeitschr. f. wiss. Zoologie, Bd. 15, 1865.

organ of the pond muscle, and in the pancreas and liver of the horse, and Ewald and Krukenberg¹ have shown that the shining, white appearance of certain portions of the skin of frogs and lizards is due to deposits of this material. It is not found in the urine of either the lower animals or of man. The accounts of its occurrence in human urine are based upon the error of confounding it with its congener, xanthin. Pecile,² however, found traces of it in the urine of a hog which was apparently gouty (?) and was being fed exclusively on bran (which has an acid ash).

Guanin occurs in the form of crystalline masses of irregular shape and size, and of a chalky white, or faint yellow color.

It may be identified as follows: Evaporated upon platinum foil with a drop or two of strong nitric acid, a shiny, yellowish-red residue remains, which, if touched when cold with a drop of sodium or ammonium hydroxide solution, becomes of a deep reddish-brown color, changing to dark purple on heating (Hoppe-Scyler³). This is quite distinct from the murexid reaction of uric acid. It is soluble in acids, and in sodium and potassium hydroxide. From solutions of guanin nitrate, argentic nitrate precipitates a crystalline double salt, the nitrate of guanin-silver (Gorup-Besanez). Picric acid, potassium chromate, potassium ferri-cyanide, all produce crystalline precipitates in a solution of the nitrate.⁴

The ham which furnished the specimens for the following observations was sent to the laboratory to be examined for trichinæ, as the chalky concretions in the meat had aroused the suspicions of the physician upon whose table it had appeared. It consisted of the femur (minus its upper end), the upper portions of the tibia, and fibula—including, therefore, the knee-joint—with most of the meat, subcutaneous adipose tissue, and skin of the parts. Of its history, I could only learn that it was bought as a Virginia-cured ham, and had been first boiled and then roasted.

The animal had evidently been a young one, since the head of the bones readily separated from the shafts, at the epiphyseal synarthroses.

GROSS ANATOMY.—*Bones*. At various points on the surface of junction between the epiphyses and the shafts, discrete, chalky-looking masses of guanin, a few square millimetres in area, were seen. There appeared to be a deposit also in the dense, bony tissue of the shaft itself, but subsequent examination with the polariscope showed this to be

¹ Ueber die Verbreitung des Guanin, etc. Untersuchungen des Phys. Institute der Univ. Heidelberg, Bd. 4, Heft 3.

² Domenico Pecile. Guanin im Schweinebarn. Arch. d. Heilkunde, 1876, p. 85.

³ Handbuch d. phys. u. path. chem. Analyse. 5th ed., 1883.

⁴ Stefano Capranica. Vorläufige Mittheilung einiger neuer Guanin reactionen. Zeitschr. f. phys. Chem., Bd. 4, p. 233.

a lime salt. Scattered over the periosteum were numerous flat, scale-like deposits.

Joints. In the ligaments and periarticular tissues generally, the deposits were quite abundant, and similar to those in the periosteum. Within the joint, the guanin was found both in the cartilages covering the ends of the bones, and in the semilunar fibro-cartilages, and formed patches closely resembling the deposits in human gout, except that instead of being situated furthest away from the insertion of the synovial membrane, and, therefore, as Budd¹ has shown, out of the reach of the influence of the synovial capillaries, they seemed scattered indiscriminately. The larger deposits, though causing a distinct elevation of the surface of the cartilage (see Fig. 5), felt smooth to the touch, and, as microscopic examination showed later, were, as in human gout, invariably situated within, and not upon, the surface of the joint.

Muscle. In the muscles the deposits occurred most abundantly at the inter-muscular septa, these, in many instances, being thickly strewn with lamellar deposits, which did not penetrate the muscular substance proper, but could be distinctly seen to lie between the layers of connective tissue of which the septa are composed. On cross-section numerous deposits were found. These were generally in the form of small, irregular lumps, but in some instances they formed arborescent branching figures, caused by the deposits penetrating between the muscle bundles.

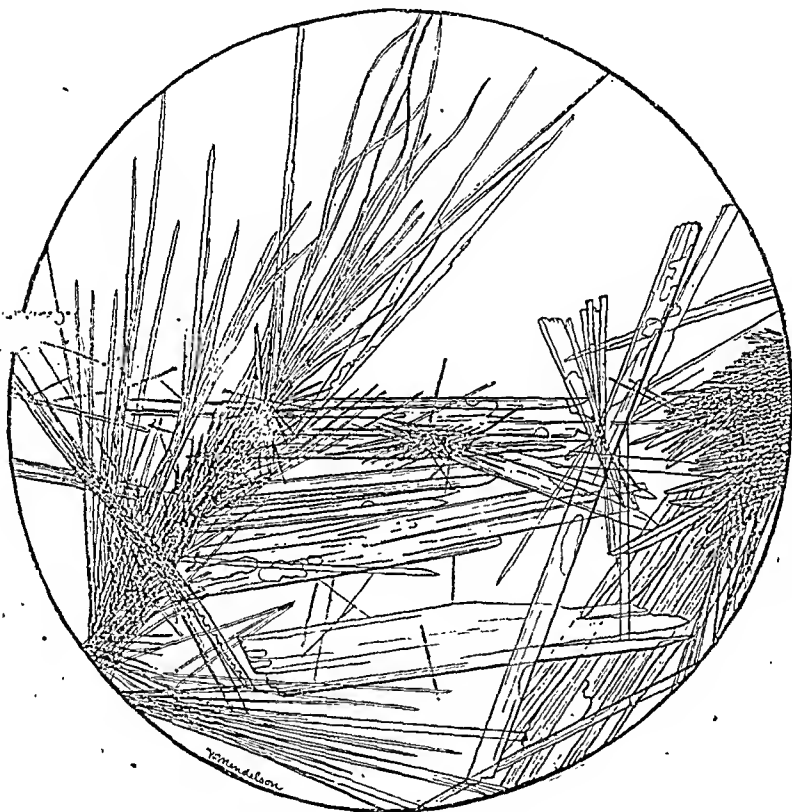
In the fat and skin, no deposits were found.

CHEMICAL EXAMINATION.—The deposits could readily be picked out of the muscular tissue—where they were larger than elsewhere—in small fragments varying in size from a pin's head to a millet seed, in a state of considerable purity, but, to avoid any source of possible error, all adherent animal tissue was removed by digesting the particles with trypsin—according to a suggestion of Ewald and Krukenberg. In this way sufficient material could be obtained for testing, and it was found to react perfectly to the tests for guanin above described. One exception was noted, namely, that on dissolving in nitric acid, effervescence took place, which does not occur with pure guanin, and, also, that the effervescence ceased before the whole mass had dissolved. It seemed probable that this was due to the presence of calcium carbonate, and so it proved, for, on dissolving some of the deposit in strong sulphuric acid, and then adding a drop of distilled water, microscopic crystals of gypsum made their appearance. The calcium carbonate probably exists in some form of combination with the guanin crystals, since neither amorphous masses nor sphero-crystals—the forms under which calcium carbonate occurs when deposited in degenerated tissues—could be found mingled with the deposits.

¹ Budd. *Medico-Chirurgical Trans.* 1855.

The silver skin of fish,¹ when subjected to the same treatment as above, gave the same results throughout, and, as Voit has shown that in it the guanin exists in combination with lime, it seems not unlikely that it is in this form that the deposits will always be found to occur in the tissues. If the calcium carbonate were deposited simply in consequence of that tissue degeneration, soon to be alluded to, occurring within the area of deposit, it would most probably be deposited in the ordinary forms, easily discernible by the microscope.

FIG. 1.

Guanin nitrate. $\times 50$ and reduced.

Obtained by dissolving the deposits in strong nitric acid, and leaving to spontaneous evaporation.

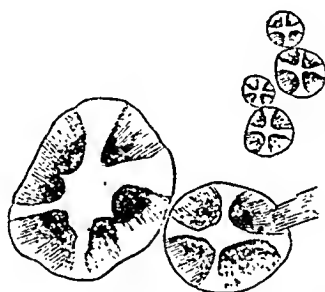
Besides being in combination with a lime salt, the guanin crystals are united to some proteid body, no doubt derived from the tissue in which crystallization takes place. For, after the previously well-digested guanin mass had completely dissolved in nitric acid, there always remained a delicate, transparent, structureless material, like the ghost of the former deposit. It is this colloid material, insoluble in acids, but soluble in alkalis, which determines the acicular form, and radiate

¹ See foot-note on p. 115.

arrangement, of the crystals in the tissues, not only of guanin, but also of sodium urate, as the investigations of Rainey¹, Ord², Van-Dyke Carter³, and others have shown.

The influence of the presence of a colloid upon crystalline form is well illustrated by Figs. 1 and 2. In Fig. 1 we have crystals of guanin nitrate, prepared by dissolving a particle of the deposit upon a slide, and then leaving the solution to spontaneous evaporation (if heat be applied, a sticky, varnish-like mass will be produced instead, which does not crystallize). The salt so formed crystallizes in long, flat, pale yellow, oblique rhombic prisms, of the monoclinic system. These are often so long and narrow as to become acicular, when they are frequently congregated into star-shaped tufts or arborescent masses of great beauty.

FIG. 2.



Sphero-crystals of guanin seen by polarized light. $\times 50$. Obtained by slow evaporation from an ammoniacal solution.

Fig. 2 shows spherocrystals of guanin seen by polarized light. These were obtained by treating the deposit, on a slide, as before, with ammonium hydrate, and covering with an inverted test tube to prevent evaporation. Thus subjected to the prolonged action of the ammonia, the colloid dissolved as well as the guanin, and, on allowing evaporation to take place *slowly*, reunion occurred in the characteristic shape depicted. These spherocrystals are colorless and biscuit-shaped (much resembling, and from a similar cause, the calcium oxalate biscuits found in the urine), with a finely radiate structure. With crossed Nicol's prisms they give a well-marked black cross, and that beautiful play of brilliant colors peculiar to polarized light, but which it is impossible even to indicate in a black and white drawing.

On allowing the ammoniacal solution to evaporate *rapidly*, the guanin crystallizes, not in biscuits, but in the shape of minute brushy tufts, united two and two by their apices to form sheaf-like figures.

In all the drawings it will be seen that within the tissues the deposit is composed of delicate acicular crystals, arranged most often in a

¹ On the Mode of Formation of Shells, of Bone, and several other Structures, by a Process of Molecular Coalescence. 1858.

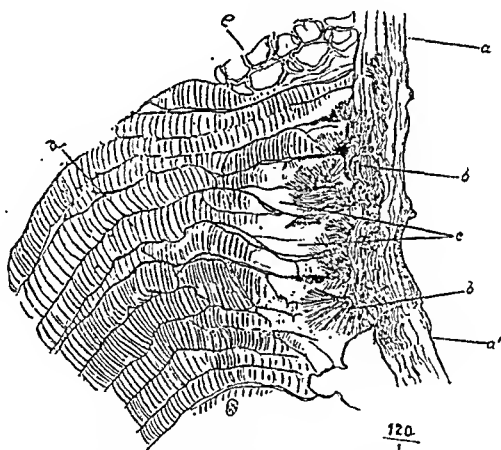
² On the influence of Colloids upon Crystalline Form and Cohesion. 1879.

³ Mode of Formation of Urinary Calculi. 1873.

radiate manner, showing the effects of the presence of the colloidal composition of the media in which crystallization has taken place.

PATHOLOGICAL HISTOLOGY.—Pressed out flat in glycerine or water, the deposits from the muscles appear fibrous in structure, being made up of innumerable fine, short, hair-like crystals, arranged in more or less parallel bundles, or radiating groups, all intermingling to form a thickly felted mass. The individual crystals, even under a power of 500 diameters, appear only as highly refractive, fine, double-contoured lines, having no definite crystalline form. Many of them have a slightly beaded appearance. Under the polariscope, the deposit is doubly refractive, transmitting light when the Nichol's prisms are crossed. The polariscope is a most useful, and to avoid all error, almost indispensable aid in searching the tissues, since without it other, especially calcareous, deposits may be confounded with guanin.¹

FIG. 3.



Guanin deposits in a tendinous sheath and muscle. Eosin stain. $\times 120$. α , α' , tendinous sheath, in which the guanin crystals, b , will be seen to follow the course of the connective tissue layers, and to radiate into the adjacent muscle, d ; at c , the striations of the muscle fibres have been omitted, to indicate the difference in tint of the necrotic portion embraced within the area of crystallization; e , adipose tissue.

In sections through the muscle, both longitudinal and transverse, I observed that the deposit invariably starts from some connective tissue structure, either—as in Fig. 3—from the tendinous sheath, or from some inter-muscular septum. In Fig. 3 the deposit is thickest in the tendinous sheath itself, the crystals following the sinuosities of the con-

¹ In this connection, the silvery pellicle beneath the skin of the fish—the sardine and the herring being used—was examined. I found it to consist of crystals identical in appearance with the above (except that they are a little coarser in fibre), and corresponding to the same chemical and microscopical tests. These crystals are disposed in parallel series, and it is no doubt this arrangement, together with the white color of the deposit, which gives to the skin of fish—especially that of the belly—its iridescent, silvery sheen. Since it is definitely known that the white pigment is composed of a combination of guanin and lime, this identity affords another evidence of the deposits in the ham being really composed of guanin.

nective tissue layers of which the sheath is composed. From the sheath they radiate into the adjacent muscle, penetrating both between and into the muscular fibres. Where the accumulation between the fibres is considerable, these may become forced apart, and more or less broken up, but where crystallization has taken place within them, no marked structural change occurs, as is evident on dissolving away the deposit in a weak alcoholic solution of nitric acid. In a specimen so treated, the marks of the crystals can be plainly seen within the fibre, and upon the sarcolemma, reminding one of the impressions left by fossils in rocks.

The presence of the guanin crystals in the tissues is not indifferent toward the preservation of their integrity, for the fibres included within the area of crystallization—as is also the case in human gout—undergo degeneration, or necrosis. The exact nature of this degeneration I have not been able to determine, but it seems to be in some respects similar to the amyloid. The fibres become laterally cleft, and have a brittle, glassy look, but do not shrink within the sarcolemma, nor become granular, nor lose either their nuclei or their striations—though both are perhaps somewhat less distinct than normal. In a word, there is—with the exception of the clefts, which may perhaps be post-mortem, or due to the boiling of the ham—little or no structural change.

A molecular alteration, which must in all probability affect the physiological integrity of the tissues, does occur, however. This is shown by the altered reactions to staining fluids and to polarized light. It is to Ebstein¹ that we owe the important discovery of the existence of these molecular changes at the site of gouty deposits, and I am glad to be able to confirm for guanin gout the observations which he made upon the human variety.

Stained with an alcoholic solution of eosin the affected fibres all around the edges of the deposit assume a lighter red color than the unaffected, and the same is true when Weigert's acid fuchsin method is employed. In the latter case the deposit will necessarily be removed by the caustic potash solution used in this method, when it will be seen that the place it formerly occupied is, in contrast with the surrounding tissue, either a very light pink, or almost colorless—depending upon the length of immersion in the potash solution. After dissolving away the deposit with weak nitric acid, the contrasts presented by the eosin stain are as marked as with the acid fuchsin method. If such sections be stained with hæmatoxylin, the site of the former deposit assumes either a purplish crimson hue, or a darker violet than the normal tissue. With Bismarck-brown it becomes of a deep mahogany color, while the surrounding parts are of the usual light brown. With gentian-violet and potassium iodo-iodide solution nothing characteristic is obtained, showing absence of true amyloid degeneration.

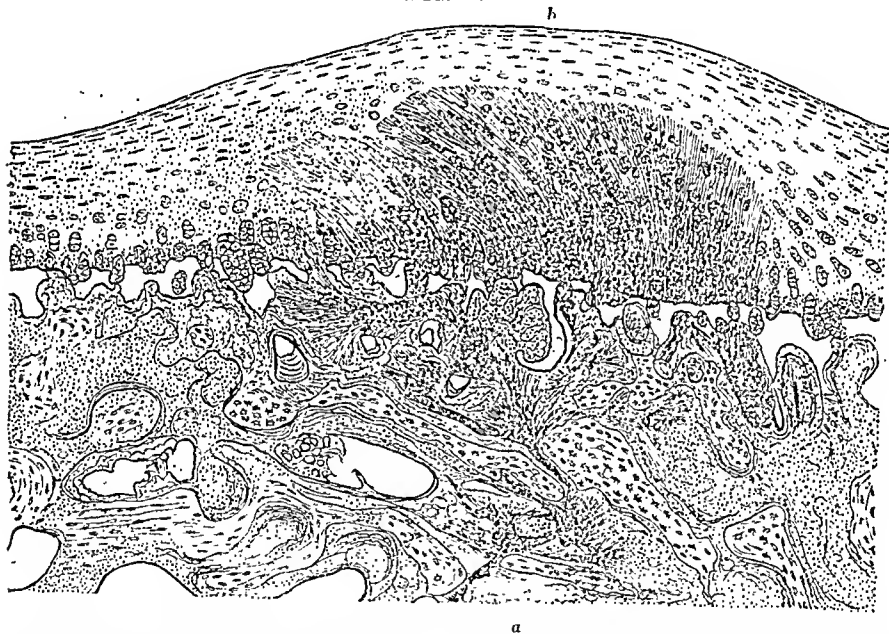
¹ Die Natur und Behandlung der Gicht. Wiesbaden, 1882.

In Fig. 3 I have sought to indicate the lighter color which an eosin stained specimen exhibits about the deposit, by omitting the striations from the muscle fibres, though these are not in reality absent.

It is a rather singular fact that in no instance were any signs of inflammatory reaction about the site of deposit discovered, though, at first sight, one would expect that the presence of so much foreign material would have provoked such a change. But neither small-celled infiltration, nor increased presence of connective tissue was observed—facts which, I think, point to the very gradual accumulation of the deposit allowing the tissues to adapt themselves to its presence.

For the examination of the articular deposits sections were made through the masses lying in the cartilage of the lower end of the femur, in such a manner as to include a portion of the underlying bone—this being soft enough to be cut without previous decalcification.

FIG. 4.



Section through the articular cartilage and bone of the knee-joint. Picro-carmino stain. $\times 50$ +. *a*, crystalline deposits lying in the medullary spaces of the bone, and spreading upward toward the cartilage. *b*, intercartilaginous deposit, causing prominence on the articular surface, deflection of the coll columns, and preservation of the primitive cell form. About the margin of the deposit a narrow unshaded portion indicates the difference in tint, between the healthy tissue and the necrotic area.

Fig. 4 represents such a section, illustrating very perfectly the mode of deposition within the cartilage and bone. In the cancellous portion, beneath the articular cartilage, it will be seen how the guanin lies in the medullary spaces, and how from these it has spread upward, invading the cartilage, and pushing it before it so as to cause a distinct prominence upon the surface. That deposition does actually begin first in the bone, and not in the cartilage, is proved by the following facts. Firstly,

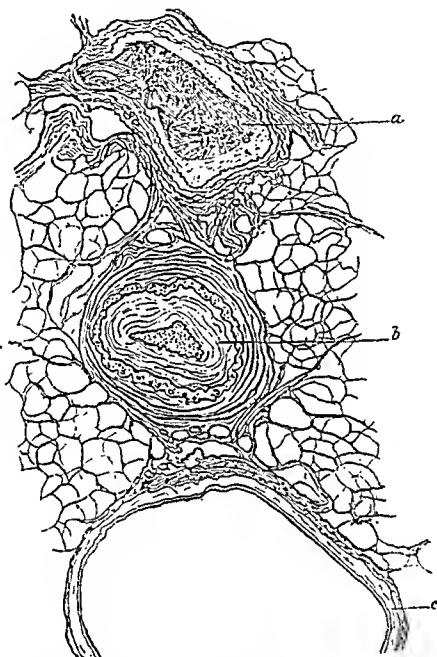
the deposit is thickest and deepest nearest the bone, thinning off gradually as it approaches the articular surface. Secondly, the columnar arrangement of the cartilage cells within the deposit has been altered so that the columns, as well as the individual cells of which they are composed, are deflected, causing their long axes to coincide with the direction of the crystals. Thirdly, the deposit, in its upward growth, has pushed the cartilage before it. This is shown not only by the prominent elevation upon the articular surface, but by the cells within the deposit having retained their primitive ovoid form at a level where cells in the unaffected portion are already flattened laterally by compression. The crystalline growth has in this instance acted like a supporting framework, holding up the cartilage, and thus preventing the compression of its contained cells. Now it is interesting to note that in all the many sections examined, not one was found in which the crystals formed first at the periphery and grew toward the centre—as they invariably do in human gout—but, on the contrary, they always started at the base of the cartilage and pushed their way upward toward the surface. I never saw any that quite reached the surface, but this might perhaps have been because the animal was young and the deposit of comparatively recent growth.

Crystallization in cartilage is both interstitial and intracellular, and I am inclined to think that deposition occurs primarily in the ground substance, and not in the cells, though most observers of the histological changes of human gout incline to the view that in it the deposit occurs first in the cells. There is a difference between the inter- and intracellular deposits. The first are composed of long, thin needles, having a generally parallel, or only slightly divergent course, while, within the cells, the needles are short and thick, not projecting beyond the capsule, and more or less divergent. They are also usually not parallel with those in the surrounding tissue. For this reason, the cells can be plainly seen, lying as dark spots within the deposit, as the focus is moved up and down. Their appearance is sufficiently indicated in Fig. 4. These differences in crystalline form and direction are interesting to note in connection with that influence of colloids upon crystallization, before alluded to, and are a proof of a molecular difference in the composition of the protoplasm of the cells and of the matrix. They also give a clue to the site of primary deposits, and the reason that I hold that this is in the matrix, and not in the cells, is, that in no instance were cells lying outside of the area of deposit found containing crystals, and, again, it not unfrequently happened that not all the cells embraced within the area were affected. It seems probable, therefore, that the cells are but secondarily involved.

Sections stained, after removal of the deposits, with a weak acid, show analogous changes, indicative of molecular alteration, to those

observed in muscle and connective tissue. The area of deposition seems structurally intact. The capsules are large, with many well-preserved nucleated cells within them, this condition being due, as already stated, to the relief from compression afforded by the deposit. But the whole area, as well as its contained cells, has a glassy look, and stains a lighter red with eosin than the surrounding cartilage. This difference in color extends, as in muscle, beyond the deposit itself (a fact which I have sought to indicate in Fig. 4 by leaving a narrow margin unshaded), showing that the extent of degeneration extends even beyond the area of crystallization itself.

FIG. 5.



Portion of small intermuscular septum, containing an artery, *b*, and two venæ comites, *a* and *c*. Picro-carmino stain. $\times 120$. The vein, *a*, is filled with guanin (here partly dissolved on the edges from the specimen having been hardened in chromic acid).

In bone, no deposits were found outside of the medullary spaces. In no instance were crystals ever observed penetrating the bone tissue itself. Of the vascular system, only the veins were affected, and these were frequently found to be the seat of deposit.¹ The guanin forms masses which completely fill the lumen of the vessel, but seem to have no integral connection with the wall, and hence are evidently deposited from the blood. I noted that the veins in which deposition had taken place were usually small, and more or less flattened and distorted, leading me to the belief that from this cause a stagnation of the blood had

¹ Paget (Clinical Lectures and Essays, 1875) mentions the occurrence of gouty phlebitis, but his observations lack post-mortem confirmation.

occurred, which afforded time for the guanin to crystallize; not, however, as though the whole mass had crystallized out at once from a given quantity of blood, but first a little deposit occurred, and as the blood passed slowly through the obstructed vessel, more and more crystallized out, until the whole lumen was occluded.

Fig. 5 shows a section through an intermuscular fibrous septum, containing a small artery and two venæ comites, one of which is filled by a guanin deposit (it does not entirely fill the vein here, as it is partly dissolved at the periphery, from the specimen having lain in weak chromic acid). Other deposits, lying in the fibrous connective tissue, existed in the neighborhood, but are not included in the drawing.¹

If we now turn to the consideration of the nature of the deposit, its mode of deposition, and the tissue changes produced, we must at once be struck with the many resemblances it bears to the gout of human beings, and while there are certain divergences between the two, yet the similarity is close enough to warrant the original title of *guanin gout*, first given to the condition by Virchow.

It will, I think, be instructive to examine these two pathological entities side by side, to see wherein they coincide, and in what they differ.

First, regarding the nature of the deposit. Both the urates and guanin are members of a series of crystalline, nitrogenous bodies, representing two of the final products of proteid metabolism, the former being a normal, the latter an abnormal product. For even in the birds in whose dung it is found, it arises simply from the incidental composition of their food, and not from any peculiar tissue metabolism. Under what circumstances guanin is produced, we have absolutely no knowledge, but that it is formed in the hog under certain unknown conditions this investigation shows. Its analogy to the urates in man is evident, for we have seen that it produces almost identical lesions in the tissues. But of the peculiar conditions which in the human economy bring about an accumulation of urates, and, in the hog, an accumulation of guanin, we are entirely ignorant. *A priori*, it seems rather singular that there should be this difference, when we consider (though the comparison may not be flattering) the similarity between the alimentary habits of both animals—both being omnivorous, and both (unless common report much slanders the hog) being given to over-feeding. Pecile's² observation, already cited, of the occurrence of guanin in the urine of an apparently gouty pig, fed on bran, is interesting in this connection.

¹ It may, perhaps, be urged that the concretions found in the ham are the result of the pickling process to which it had been subjected, or that they are due to some post-mortem chemical change of the tissues. The possibilities had suggested themselves in the beginning, but I think a glance at Fig. 4 will convince any pathologist that the anatomical changes which it shows existing in the cartilage, could only have been produced during the life and growth of the tissue.

² Loc. cit.

The ash of bran is acid, and would render the urine so, and the guanin found in this case might possibly correspond to the "uric acid showers" often observed in the highly acid urine of gouty subjects.

The mode of deposition, and the tissue changes produced, have been already sufficiently discussed. It only remains to inquire into the pathology of the lesions.

Ebstein, who has done so much to advance our knowledge of the minute pathological anatomy of gout, was the first to discover the degenerative tissue changes occurring at the seat of the gouty deposit, all previous observers having reported the tissue structurally intact. He is inclined to think that this localized degeneration, or necrosis, is primarily caused by the circulation, in the fluids of the body, of abnormal amounts of neutral sodium urate. Where the circulation, owing to absence of bloodvessels, is slowest (as in cartilage), the tissues are longest subjected to the action of this deleterious influence, and, hence, most liable to necrosis. In necrotic tissue, according to him, an acid reaction ensues as a result of concomitant changes, and this acidity is sufficient to change the soluble neutral urate to an insoluble acid urate, which then crystallizes in the necrotic area. Ebstein bases this theory principally on the fact that, firstly, he has found areas of only beginning necrosis in which no deposits had, as yet, occurred; secondly, upon the aforesaid acid reaction of dying or dead tissue; and, thirdly, upon the invariable occurrence of necrotic tissue within the area of crystallization. The experiments made upon chickens by Ebstein to prove the pathogeny of gout seem to bear out the theory thus formulated, but they still lack confirmation by other observers.

In guanin gout, it would seem to me that the deposit is primary, and the necrosis secondary, and I base this idea principally upon the appearances presented by cartilage in which deposition has occurred.

Examination of Fig. 4, which is typical of all the cartilage deposits examined, shows that the deposit occurring at the base of the cartilaginous covering of the bone, gradually pushed its way toward the surface, and, by preventing compression of the cartilage cells, allowed them largely to retain their primitive shape. Moreover, the deflection of the cell columns shows that growth and deposition must have gone on simultaneously. That a molecular alteration has occurred, the altered reaction to staining tests sufficiently proves, but it does not seem to me that a certain degree of molecular alteration is necessarily incompatible with the life of the tissue. Indeed, the metaplasia of the connective tissues—the very change of cartilage itself to bone—cannot be conceived without the occurrence of molecular as well as anatomical changes.

NOTE.—In view of the rarity of the condition, the writer will feel obliged for any notes of cases, or specimens sent him. These, or any-

thing resembling gout in animals, may be sent to me, care of College of Physicians and Surgeons, Fifty-ninth Street and Tenth Avenue, New York, and will be gratefully acknowledged.

THE DYSPNŒA OF BRONCHITIS:

ITS CAUSATION AND THE INFLUENCE OF NITRITES UPON IT.

BY THOMAS R. FRASER, M.D., F.R.S., F.R.C.P.E.,

PROFESSOR OF MATERIA MEDICA AND OF CLINICAL MEDICINE IN THE UNIVERSITY OF EDINBURGH.

(Concluded from No. clxxxviii., page 415.)

HAVING ascertained that the dyspnœa of asthma and the auscultatory phenomena which accompany it are produced by spasm of the bronchial tubes (see the number of this Journal for October, 1887, page 393), I next applied the same method of investigation to the dyspnœa of bronchitis, where also dry râles, having the same characters as those that occur in asthma, are met with. In bronchitis, the dyspnœa is undoubtedly a symptom which is less urgent than in asthma, but still it is often so prominent as to add greatly to the distress of the patient. Its causation is admittedly a more complex one in bronchitis than it is in asthma. In the former disease, it is usually associated with physical signs of a more varied description; for it may be accompanied not only with dry râles, but also with many varieties of moist sounds. The explanation of the production of the latter is not, so far as I know, a matter of doubt or ambiguity, but some difference of opinion exists as to the explanation of the former.

The impression in my own mind has until lately been that the dry râles, the rhonchi and sibili, the snoring, cooing, and whistling sounds, are produced by swelling or engorgement of the mucous lining of the bronchial tubes, or by constrictions of these tubes caused by deposits of adhesive mucus or other products of inflammation; and that these sounds, because they were indications of these or similar changes in the bronchial tubes, were among the most important of the symptoms of bronchial inflammation.

A spasm element, whose influence upon the physical phenomena of bronchitis was, however, by no means easily definable, entered into the conception of the disease in those cases where dyspnœa was specially urgent, or where it interrupted the ordinary course of an otherwise continuous slight dyspnœa by periodically assuming exacerbations in the intensity of its manifestations.

A reference to the literature of bronchitis has, on the whole, confirmed the impression that what I have stated is the prevailing opinion, and the prevailing teaching on the subject. For example, the dry sounds of bronchitis, the rhonchi and sibili, are stated by Laennec,¹ Guttman,² Davis,³ Latham,⁴ Hilton Fagge,⁵ Riegel,⁶ Jaccoud,⁷ and others, to be produced by contractions of the bronchial tubes, caused by tenacious mucus, tumefaction, engorgement, or puckerings of the mucous lining. Only a few writers, such as Niemeyer,⁸ Stokes,⁹ Roberts,¹⁰ and Carmichael,¹¹ state that it is occasionally indicated by these sounds that the bronchi are being constricted by spasm of their muscles.

The conceptions generally prevalent on the subject may perhaps be best illustrated by the following quotations: Riegel, in the elaborate dissertation on bronchial catarrh, which he has contributed to Ziemssen's *Cyclopædia of the Practice of Medicine*, states:

"The accurate determination of the character of the râles [in bronchial catarrh] is of especial importance, because we can determine thereby the special sort of alteration existing in the bronchial tubes. Thus the long-used distinction between moist and dry râles has an important significance. The former are due to the movement of thin liquid products in the trachea and bronchi, and the latter are due to the friction of the current of air against the swollen mucous membrane of the bronchi, and to the presence of very viscid products. Dry râles indicate, therefore, more or less considerable swelling of the mucous membrane, and eventually the presence of small quantities of very tenacious fluid in the bronchi."¹²

In another place, having referred to the effects of secretion in the air tubes, he proceeds to state:

"In other cases, only dry, whistling, and sonorous râles are heard, occasioned by severe swelling of the mucous membrane, and the presence of tenacious, scanty secretion."¹³

Bristowe, in his *Treatise on the Theory and Practice of Medicine*, thus explains these sounds:¹⁴

"The cause of rhonchus is not the bursting of bubbles or the passage of air through fluid, but the passage of air through a tube narrowed at some point either by thickening of its parietes or by the adhesion of a plug of tenacious mucus." . . . "The pitch of the musical note depends on

¹ A Treatise on Mediate Auscultation. Edited by Theophilus Herbert, M.D. Pp. 52, 53, 61, 64, 73, 74, 78. London, 1846.

² Handbook of Physical Diagnosis. Translated for the New Sydenham Society by Alexander Napier, M.D. 1879, pp. 159, 160.

³ Pepper's System of Medicine, 1885, vol. iii. pp. 171, 178.

⁴ Collected Works. Edited for the New Sydenham Society by Dr. R. Martin. 1878, vol. ii. pp. 112, 113, 116, 117, 120.

⁵ The Principles and Practice of Medicine, 1886, vol. I, pp. 863, 864.

⁶ Ziemssen's Cyclopædia of the Practice of Medicine, 1877, vol. iv. pp. 354, 388, 427.

⁷ Traité de Pathologie Interne, 1883, t. ii. pp. 378, 381, 382.

⁸ A Textbook of Practical Medicine. Translated by George H. Humphreys, M.D. 1870, vol. i. p. 82.

⁹ A Treatise on the Diagnosis and Treatment of Diseases of the Chest. Edited for the New Sydenham Society by Alfred Hudson, M.D. 1882, p. 64.

¹⁰ Reynolds's System of Medicine, 1871, vol. iii. pp. 891, 896.

¹¹ Edinburgh Medical Journal, Oct. and Nov. 1886.

¹² Loc. cit., p. 354.

¹³ Loc. cit., p. 388

¹⁴ Third edition, 1884, pp. 386, 387.

various complex conditions, the exact influence of each one of which it would be difficult to estimate, but is determined in very considerable degree by the size of the bronchial tube in which it is developed. Thus, as a general rule, hissing and whistling sounds, or sibilant rhonchi, arise in the smaller tubes, and grave tones or sonorous rhonchi are the product of the larger ones."

Many quotations to the same effect could be extracted from the writings of other authors.

Putting aside as a cause of dyspnœa the moist sounds, which in bronchitis imply, according to their abundance, either obstruction to the movement of air in the bronchi, or obstruction to the contact of air with the bloodvessels in the air cells, there remain for consideration the dry sounds of the different qualities of rhonchi and sibili, which share with the moist sounds a peculiar diagnostic importance in bronchitis.

A number of observations were made with the object of determining to what extent these sounds are modified by nitrites, and to what extent any modification produced was associated with a change in the severity of the dyspnœa that was present.

The observations were made in many forms and stages of bronchitis, but for the purpose I have in view they may be arranged in accordance with the characters of the expectoration, as, for instance, if that were mucopurulent, or serous, or glairy and adhesive, or abundant or scanty. The effects of nitrites on the dyspnœa and auscultatory phenomena, where such like variations in the expectoration existed, may be illustrated by a brief description of a few observations selected from many others that were made. In this selection, observations have been taken which will also serve to illustrate the effects of each of the nitrites administered, and of nitroglycerine.

OBSERVATION IX.—Daniel McD., a carter, aged forty-four, was admitted into the Royal Infirmary, complaining of cough, profuse expectoration, constant difficulty in breathing, and general weakness. He had been troubled with cough for twenty years, but had otherwise been healthy. For the last two years he had not been able to work. His chest was somewhat barrel-shaped, and there was a hyper-resonant note over the whole of the anterior surface. The auscultatory phenomena were those of bronchitis, viz., prolonged expiration, numerous median crepitations, and an abundance of rhonchi and sibili. The heart was dilated slightly, but there was no evidence of disease of the valves.

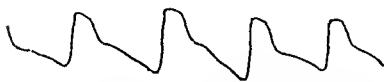
On the 6th of October, 1886, immediately before nitroglycerine was administered, the following conditions were present: The breathing was "a little difficult," the chest feeling "very stiff." Since early morning he had expectorated a large quantity of mucopurulent sputum. At the right side there was snoring rhonchus with crepitations during inspiration, and brief rhonchus during expiration; and at the left side there was sibilus during inspiration and expiration, expiration being considerably prolonged at both sides. The pulse was 100, and the respirations were 25 per minute. At 11 35' A.M. there were rhonchi throughout inspiration and expiration at both sides, with a few crepitations which occurred occasionally.

At 11 36', four minims of a one per cent. solution of nitroglycerine were administered in a little water.

At 11 36' 30'', at both sides the rhonchi and sibili had entirely disappeared, a few crepitations only remaining; and the patient said he "felt much relieved."

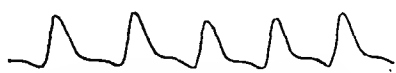
At 11 40', the pulse was 98, and the respirations were 30 per minute.

FIG. 17.



Before nitroglycerine; pulse 100, respirations 26.

FIG. 18.



Four minutes after nitroglycerine; pulse 98, respirations 30.

At 11 41', at the right side the breathing was quite soft, and at the left side it had the same character, but a faint distant rhonchus was now and then heard.

At 11 45', the pulse was 102, and the respirations were 30 per minute.

At 11 48', the breathing was perfectly soft, and free from all accompaniments at both sides. The patient stated that he has no feeling of tightness, and that his breathing is "quite easy."

FIG. 19.



Nine minutes after; pulse 102, respirations 30.

FIG. 20.



Eighteen minutes after; pulse 99, respirations 27.

From 11 51' to 12 38' the chest was almost continuously auscultated, and during the whole of this time the breathing continued to be soft and vesicular, and free from rhonchi and sibili, the only accompaniments being small and medium crepitations, which were usually, but not invariably, present. During the whole of this time, also, the breathing of the patient remained altogether easy and unembarrassed. The pulse and respirations were usually slightly less frequent than they had been before the administration of the nitroglycerine.

FIG. 21.



Thirty-four minutes after; pulse 101, respirations 27.

FIG. 22.



One hour and two minutes after; pulse 96, respirations 27.

The uniformity of the conditions during frequent observations led to the observations being interrupted for a short time, when they were resumed.

At 1 2' P.M., at the right side there were sibili with inspiration and expiration, and at the left side there were faint sibili varied by occasional

rhonchi accompanying both inspiration and expiration. Crepitations were also heard at both sides during inspiration and expiration. The patient said his "chest was a little stiffer." The pulse was 96, and the respirations were 25 per minute.

At 1 6', however, while the crepitations continued, the rhonchi and sibili had again entirely disappeared; and the patient said his "breath was light again."

At 1 26', at the right side there were slight sibilant rhonchi, and at the left side there were sibili and a few crepitations, with both inspiration and expiration. The breathing had become more difficult, according to the patient. The pulse was 84, and the respirations were 31 per minute.

FIG. 23.



One hour and twenty-nine minutes after;
pulse 96, respirations 25.

FIG. 24.



One hour and fifty-one minutes after;
pulse 84, respirations 31.

At 1 42', the patient was again easier in his breathing, and the rhonchi and sibili had again disappeared.

At 2, the only accompaniments at the right side were crepitations, but a slight sibilus occurred with crepitations at the left side. The patient stated that his breathing was "fairly easy."

FIG. 25.



Two hours and thirteen minutes after;
pulse 84, respirations 26.

FIG. 26.



Two hours and twenty-four minutes after;
pulse 82, respirations 24.

The breathing continued to be fairly easy until 5 P.M., when the sensations of tightness and difficulty reappeared; and it was found that rhonchi, sibili, and crepitations were continuous during the respirations.

OBSERVATION X.—The second observation in bronchitis, which I wish to describe, was made with nitrite of ethyl.

The patient, Annie M., fifty-three years of age, a washerwoman, was admitted into the Royal Infirmary on the 30th of December, 1885, complaining of pain in the chest and side, difficulty of breathing, and constant cough with much expectoration. Two years previously she had suffered from some acute chest affection following exposure to wet. During the winter of 1884-85 she had suffered from a severe cold with cough, and the cough did not entirely disappear until summer. Four weeks before her admission she again had a cold, and her old troubles all returned. Treatment at home having produced little benefit, she applied for admission into the Royal Infirmary. When examined, she was found to be a well-built, strong woman, with an anxious, suffering expression. Her cough was frequent and violent, and was found to be associated with extensive bronchitis. There was a little emphysema, but

no cardiac lesion could be detected. The expectoration was considerable in quantity, mucopurulent, and frothy.

On the 31st of December, the day following her admission, the symptoms had not materially changed.

At 1 15'–18' P.M., over the front of the chest on both sides there were numerous sibili and rhonchi with inspiration and expiration. The pulse was 90, and the respirations were 20 per minute.

At 1 20', she received two minims of a fifty per cent. alcoholic solution of nitrite of ethyl, diffused through two drachms of water.

At 1 22', the only accompaniment heard with the breathing was an occasional brief rhonchus with expiration. She said her "breath feels easier."

At 1 23', the breath sounds were entirely free from any accompaniment. The pulse was 90, and the respirations were 18 per minute.

At 1 24', 1 26', and 1 27', this freedom from accompaniments continued without any interruption whatever.

At 1 30', however, there were occasionally faint rhonchi at the end of inspiration, which, at 1 32', were converted into sibili. The pulse was now 88, and the respirations 16 per minute.

At 1 34', the rhonchi and sibili had again disappeared, and they remained absent, and the breathing continued unembarrassed until 2 P.M., when the observations were interrupted. The patient was not again examined until 8 P.M., when she said the breathing had a short time previously become as difficult, and the chest tightness as great as it had been before she had received the dose of nitrite of ethyl. Rhonchi and sibili were found to be continuous over the front of the chest, and the respiratory movements were found to be labored.

OBSERVATION XI.—The third observation I shall describe was on a patient, Annie M., nineteen years of age, who had suffered for some years from several diseases of the lungs, including pleurisy and bronchitis. She came under my care on the 9th of September, 1886, complaining of pain in the chest, difficulty of breathing, and cough. Besides the symptoms of widely extended bronchitis, there was also evidence of old pleurisy, and of a lingering pneumonic inflammation at the back of the chest, both of which proved extremely refractory to treatment.

FIG. 27.



Two minutes before nitroglycerine ; pulse 100,
respirations 30.

FIG. 28.



One minute after ; pulse 115, respirations 32.

On the 11th of December, 1886, at 12 50' P.M., it was found that, at the front of the chest, there were at the right side sibili during inspiration, and rhonchi during the whole of expiration; and at the left side, sibili during inspiration, and harsh breathing with creaking sounds during expiration. The sputum was considerable in quantity, and consisted of rather viscid, frothy serum, having mixed with it a few masses of purulent matter. The pulse was 100, and the respirations 30 per minute.

At 12 57', the patient received four minims of nitrite of amyl, diffused through a little water.

At 12 57' 30", the face had become red.

At 12 58'-59', at the right side there were only crepitations with inspiration, and a little creaking with a few crepitations with expiration; while at the left side inspiration was harsh but without accompaniment, and expiration had only a little creaking at its termination.

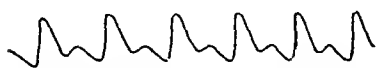
At 1 P. M., the blush had almost disappeared from the face.

At 1 1', the pulse was 99, and the respirations were 25 per minute. Rhonchi and sibili were still entirely absent.

At 1 2', a sibilus occasionally was heard during inspiration at the left side.

At 1 4', a similar accompaniment was now again heard at the right side.

FIG. 29.



Eight minutes after; pulse 99, respirations 32.

FIG. 30.



Twenty-eight minutes after; pulse 106, respirations 30.

At 1 5', however, neither sibili nor rhonchi were heard anywhere at the front of the chest, and they continued to be entirely absent until 1 17', although inspiration frequently became harsh, and crepitations and creaking sounds were generally to be heard.

At 1 19', now and then a short sibilus accompanied inspiration at the left side.

At 1 20', sibili were frequently heard during expiration at the right side.

Rhonchi by-and-by added themselves to the sibili, until at 1 30', or thirty-three minutes after the administration, the auscultatory phenomena had returned to very much the same condition as they had been before the patient had received nitrite of amyl. The pulse tracings show that the effects on the circulation were of much longer duration than on the dyspnœa and its associated auscultatory phenomena.

FIG. 31.



Forty-one minutes after; pulse 100, respirations 32.

FIG. 32.



One hour and forty-three minutes after; pulse 92, respirations 32.

OBSERVATION XII.—In the next observation, the fourth in bronchitis, the effects of nitrites in bronchitis accompanied with an adhesive and scanty sputum, are illustrated.

The patient, Alexander G., forty-nine years of age, had suffered, at intervals, for fifteen years before his admission into the Royal Infirmary, from bronchitis. Each attack was referred by him to a special "wetting" which he got while following his occupation as a shepherd. He had also had a long experience of rheumatic pains. He was a tall, well-built man; and his chief complaints were breathlessness, cough, frequently occurring in paroxysms of great severity, and great difficulty in expecto-

ration. The lungs were found to be emphysematous, and to be affected with extensive bronchitis associated with a scanty, glairy sputum of small quantity. Nitrites were on many occasions administered to this patient, but the details of only two of these administrations will be here given: the first with nitrite of sodium, and the second with nitrite of ethyl.

On the 28th of November, 1885, on examining the chest at 1 6' P. M., sibili, now and then varied with rhonchi, were heard almost continuously with inspiration and expiration. The pulse was 56, and the respirations were 16 per minute.

At 1 9' 15", one grain of nitrite of sodium, dissolved in about a drachm of water, was given to the patient.

At 1 10' 10", the sibili and rhonchi had entirely disappeared, and the breathing was no longer difficult. From this time until 1 52', a period of forty-two minutes, frequent examinations of the chest showed that the breath-sounds remained absolutely free from rhonchi or sibili.

At 1 52' 30", however, faint sibili were heard at the end of expiration, and the patient said his breathing was "beginning to close up again."

At 1 53', sibilus was frequent with expiration at the right side.

At 1 63', rhonchus was present at both sides, and the breathing was as difficult as it had been originally.

OBSERVATION XIII.—An observation on this patient with nitrite of ethyl was made on the 24th of November, 1885.

FIG. 33.



Immediately before nitrite of ethyl; pulse 66.

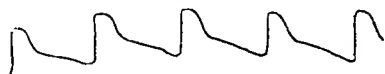
FIG. 34.



Two minutes thirty sec. after; pulse 70.

At 10 40' A.M., it was found that over both lungs inspiration and expiration were accompanied with nearly continuous sibili, the pulse being 63 per minute.

FIG. 35.



Five minutes after; pulse 74.

FIG. 36.



Thirteen minutes after, pulse 72.

FIG. 37.



Twenty-three minutes after; pulse 72.

FIG. 38.



Fifty-eight minutes after; pulse 66.

At 10 42', two drachms of spiritus ætheris nitrosi (Phar. Brit.), estimated by an analysis to contain nearly two minims of nitrite of ethyl, were given to the patient.

At 10 43', he said his breathing was easier.

At 10 45', the sibili had entirely disappeared. The respiratory sounds

remained absolutely free from accompaniments until 12 noon, or for a period of an hour and a quarter.

The chest was not again examined until 12 30', and then rhonchi were heard with inspiration and sibili with expiration.

These accompaniments were found to persist in subsequent examinations, while the breathing gradually became more difficult.

FIG. 39.



One hour and forty-eight minutes after; pulse 63.

FIG. 40



Two hours and eighteen minutes after; pulse 60

OBSERVATION XIV.—One of the best illustrations of the influence of nitrites on the dyspnœa and associated auscultatory phenomena of bronchitis was obtained in an observation on Thomas H., to whose case I have already referred when describing an observation made during a paroxysm of asthma which was treated with nitroglycerine. I then alluded to the circumstance that several observations had been made on him when he was not suffering from asthmatic paroxysms, for the purpose of ascertaining the effects of nitrites on the symptoms of bronchitis, from which he also suffered during a portion of the time that he was under treatment in the hospital.

When the observation I wish now to describe was made, he had comparatively slight dyspnœa—the chief evidence of which was merely a sensation of weight and tightness in the chest.

At 1 20' P.M., on the 12th of February, 1887, it was found that at the right side inspiration was harsh, and accompanied with several coarse crepitations, and with occasional rhonchus; while the latter half of expiration consisted of a loud rhonchus. At the left side the conditions were the same, except that there were no crepitations, and that sibili and rhonchi occupied the whole period of expiration. There was no expectoration, nor had there been any during the previous two hours. The pulse was 75, and the respirations were 20 per minute.

At 1 30' 30", he received ten minims of a ten per cent. solution of nitrite of sodium (1 gr.) diluted with a drachm of water.

At 1 33', at the left side there were a few crepitations with inspiration, but no accompaniments with expiration; and at the right side the breath sounds were absolutely clear. The patient stated that the sensations of weight and tightness had disappeared from his chest, and that his breathing was "quite easy."

At 1 34', the conditions of the breathing and of the breath sounds remained the same as at 1 33'.

At 1 35', however, slight rhonchus was heard during a part of inspiration and of expiration over both lungs, and the patient said the breathing was "not quite so clear."

At 1 36' 30", he said the breathing was again "clear," and it was found that there were no longer any rhonchi at the left side, and only on occasions a slight rhonchus with inspiration at the right side.

At 1 37', and at 1 38' 30", both sides were entirely free from any other accompaniment than a few crepitations, and the breathing was entirely unembarrassed.

At 1 42' to 1 46', brief rhonchi were occasionally heard with expiration, sometimes at the right, and at other times at the left side.

At 1 47' to 1 55' the breath sounds were again entirely free from rhonchi and sibili, and there was no dyspnœa.

At 1 57' rhonchi were occasionally heard with inspiration and expiration at the right side.

At 1 59' they had again disappeared, and they continued to be absent until 2 5', when again a rhonchus or sibilus was heard at one or other side, and with either inspiration or expiration. No further change occurred until 2 13', when these accompaniments were found to have disappeared, and they had not again returned at 2 40', when the observations were stopped. While the accompaniments were absent there was absolutely no feeling of weight or tightness in the chest.

The effects on the pulse tension were rather slowly developed, but, as the three subjoined tracings show, they had not disappeared at the conclusion of the observation. There had been neither cough nor expectoration during the whole time following the administration of the nitrite.

FIG. 41.

FIG. 42.



Before nitrite of sodium; pulse 76, respirations 20. Twenty minutes after; pulse 78, respirations 19.

FIG. 43.



One hour and ten minutes after; pulse 73, respirations 18.

The last observation I propose to describe affords an illustration of the effects of a nitrite in bronchitis accompanied with profuse watery expectoration.

OBSERVATION XV.—The patient, Mary B., thirty years of age, became ill with bronchitis four months before her admission into the Royal Infirmary, in December, 1886. She suffered, on admission, from palpitation, dyspnœa, and a frequent cough, with much watery and frothy expectoration. There was no disease of the heart, nor marked emphysema.

On the 16th of December, at 1 52', rhonchi were heard profusely over all parts of the front of the chest, along with numerous small and medium crepitations.

At 1 54', she received two minims of nitrite of amyl in one drachm of water.

At 1 57', there were no rhonchi or sibili heard anywhere, and the patient stated that her breathing was much easier.

At 2 2', the auscultatory phenomena and the breathing were the same as at 1 57'.

At 2 5', however, rhonchi were heard at the right side, though only rarely. They, however, gradually became more frequent, and the breathing slowly reacquired its former dyspnœic character.

Including those that have now been described, sixty-one observations were made in bronchitis, of which detailed records have been preserved. In forty-eight of them the nitrite administered succeeded in removing every vestige of rhonchus or sibilus for various periods of time. In ten these sounds were lessened in their amount, but they were not altogether silenced. In only three the effects were either extremely slight, or altogether negative. The sixty-one observations were made on twenty-five patients suffering from bronchitis.

Whenever rhonchi or sibili associated with any sensation of dyspnœa were removed, the previously existing dyspnœa disappeared, or became much less marked during at least the time when the rhonchi and sibili were absent or lessened; but when nitrites failed to silence or to reduce the rhonchi or sibili they also invariably failed appreciably to lessen the dyspnœa.

It seems to me that the demonstration is complete that the dyspnœa of bronchitis, when associated with rhonchi and sibili, is mainly produced by the conditions of the bronchial tubes which produce the rhonchi and sibili. The cause of these sounds cannot be intumescence by congestion of bloodvessels or other results of inflammation, otherwise nitrites would increase, rather than lessen or suspend, the sounds. Adhesive mucus cannot frequently be a cause, otherwise nitrites would not, in so large a proportion of the observations, have succeeded in producing complete silence; for they have no special effect on deposited mucus, nor was it found that any particular influence was exerted by them upon the frequency of expectoration. The only explanation of the results of the observations that can reasonably be adopted, seems to be that in bronchitis the rhonchi and sibili are frequently produced by contractions of the bronchial muscles; that dyspnœa is produced by the impeded movement of air caused by the constrictions resulting from these contractions; and that both are removed by nitrites, because nitrites reduce the spasmodic contractions of the bronchial muscles.

I have been much gratified to find that the conclusions thus arrived at are in complete harmony with opinions expressed many years ago by my friend and former teacher, Professor Gairdner. Writing, in 1853, on the subject of bronchitis, he states: "As our information at present stands, we must confess ourselves to be unhesitating believers in the doctrine of spasm. We even go further, and think there is good ground for supposing partial spasm to be in all cases connected with bronchitis, especially in its early stages, and to be the chief cause of that narrowing of the tubes at particular points, which is the most probable mechanical condition producing the sonorous and sibilant râles."

In a considerable number of instances nitrites succeeded in completely

controlling the spasmodic contractions of the bronchial muscles for only brief periods of time, presenting a marked contrast in the duration of their beneficial effects in bronchitis to what was usually observed when they were administered in an asthmatic paroxysm. The explanation of this may probably be found in the circumstance that in bronchitis, as contrasted with asthma, the exciting cause of the spasm is a persisting and purely local one, which is not removed by the action of nitrites, but continues so long as the bronchial inflammation continues.

Still, in all but the relatively few instances where the effects were practically negative, it was found that relief was experienced for a long time after the rhonchi and sibili had returned; indeed, in many of the observations, for several hours. The administration of a nitrite does not, therefore, require to be a very frequently repeated one; as the dry sounds, which sometimes quickly reappear, are still for a long time present only in a degree and amount which is much less than they originally possessed. It is, in most cases, unnecessary to administer the nitrite that is selected more frequently than every three or four hours.

Although nitrites dilate bloodvessels at the same time as they relieve the dyspnœa produced by spasm of the bronchial muscle, it has never occurred in these observations that they have increased the bronchial inflammation. Their action when they subdued or lessened the dry râles, was invariably to give relief to the patient; in some cases this relief was apparent even on the day following that in which a single dose had been administered; and, in a few instances, bronchitis was altogether cured by their almost unaided influence. At the same time, I should anticipate that where marked tendency to bronchial or pulmonary hemorrhage exists, they may increase this tendency, and, therefore, prove injurious.

I have not obtained any facts that would justify the assertion that any one of the nitrites is to be preferred in bronchitis, because it possesses therapeutic advantages over the others. There are, however, advantages of other kinds which lead me to give a preference to nitrite of sodium, and to nitroglycerine. Each of these is NaNO_2 , and can be used in solution, which admits of ready administration by the stomach, or by subcutaneous injection, in doses that can be accurately defined. Nitroglycerine¹ may, therefore, be conveniently given, not only in the form of tablets of the British *Pharmacopœia*, but also dissolved in absolute alcohol, or rectified spirit, or distilled water; bearing in mind that a saturated solution of 1 in 760 or 800 of distilled water can be obtained only by prolonged contact, that a solution in ordinary water slowly undergoes decomposition, and that solutions cannot be kept unchanged

¹ The prejudices that are sometimes raised by the use of this word may be avoided by prescribing it under the name of "Trinitrine."

for many days in the presence of alkalies or alkaline salts. On the other hand, nitrite of sodium is freely soluble in water, and it remains unchanged for an indefinite time when dissolved in either distilled or ordinary water; but it is decomposed by acids, and for this reason it is quite possible that when the contents of the stomach are exceptionally acid in reaction the nitrous anhydride it contains may be so completely set free in the stomach that only a little nitrite will enter the blood—an accident, however, which could easily be prevented by giving it with an alkali.

Nitrite of amyl and nitrite of ethyl have not only the inconvenience of requiring alcohol to dissolve them, but also the great disadvantage of being very unstable substances, spontaneously undergoing change and deteriorating in the course of time. These inconveniences are fully recognized in the case of nitrite of ethyl, as it occurs in the *spiritus ætheris nitrosi* of the *Pharmacopœia*, which, however, has continued, notwithstanding, to be a favorite and widely used remedy. It is probable that the favor with which it is regarded is due not only to the action on the circulation which it shares with the other nitrites, and to its being an alcoholic preparation, but also to the previously unrecognized influence which it exerts on dyspnœa, when it is administered, as it so frequently is, in the treatment of bronchial catarrh.

The power of these substances to control bronchial spasm, whether that show itself in the orthopnœa of an asthmatic paroxysm or in the relatively slight dyspnœa of ordinary bronchitis, will probably lead to their being more largely used than they have hitherto been in the treatment of disease. Where their administration is successful in removing the auscultatory evidences of such spasm, it is difficult to imagine anything more convincing of the influence that may be exerted upon the conditions of disease by pharmacological agencies. The observer has presented to him a patient in whose thorax a continuous succession of varying sounds is being produced, and whose condition is one of distress, and sometimes of intense suffering and anxiety; within a few moments after a nitrite has been administered the conditions are entirely changed; the endless succession of noisy breath-accompaniments gives place to an almost complete silence, in which only the subdued quiet of the normal respiratory sounds is audible; and, at the same time, the distress of dyspnœa, or, it may be, the intense suffering and anxiety of urgent orthopnœa are entirely removed.

I have, in conclusion, to express my obligations to a number of gentlemen who gave me valuable assistance in these observations, and especially to Dr. Sawers Scott, for some time clinical assistant, and to Drs. Vaughan, Thompson, Robertson, Wilson, and Jeffcoat, resident physicians, and Messrs. Tofft, Traquair, Gibson, Dunlop, Loubser,

Hawkes, Hutton, and others of the clinical clerks in my wards when the observations were being made.

As in each observation the chest was almost continuously auscultated, pulse tracings were taken every few minutes, the respiratory and pulse movements were frequently counted, and, in several instances, the movements of the chest and abdomen were recorded by means of Marcy's polygraph, while the observations generally lasted for one or two hours, it is obvious that any value they may possess has been largely derived from the assistance and coöperation of these gentlemen.

ON THE DIAGNOSIS OF DERMATITIS HERPETIFORMIS.¹

BY LOUIS A. DUHRING, M.D.,

PROFESSOR OF SKIN DISEASES IN THE UNIVERSITY OF PENNSYLVANIA.

FROM a perusal of the reports of certain cases of cutaneous disease which have been published from time to time within the last few years, and from the several criticisms and reviews of my writings on dermatitis herpetiformis which have come to notice, it would seem that the disease is not clearly understood by some. Thus, according to the reported proceedings of the New York Dermatological Society, where this subject was discussed (*Journ. Cutan. and Ven. Dis.*, April, 1886, p. 120) the remarks made would indicate that the disease in its several phases was not familiar to all of the members. The views expressed show that considerable discrepancy of opinion existed on the subject; and there even seemed to be doubt in the minds of some whether any such disease actually existed. For these and other reasons I desire to direct attention to the subject again, considering in particular the characteristic features of the affection and the symptoms which distinguish it from other similar dermatoses.

My first article on this disease, published in 1884, was based upon an experience with a number of cases of cutaneous disease which I had encountered from time to time, all having certain features in common. These manifestations, it seemed to me, represented one process, and, therefore, ought to be brought together and considered under one name. The views there enunciated I still believe to be in the main correct, certainly so far as the clinical studies are concerned. Some of the cases were under notice for many years, during which period I had ample opportunity of studying the several phases of the eruption and the process as a whole. Since then other observers have reported instances of the same disease, and it may be hoped that soon we shall be in pos-

¹ Read before the Amer. Dermatological Association, at the Eleventh Annual Meeting, Sept. 1, 1887.

session of sufficient material to enable us to define more precisely what cases shall be included under this name and which cases may be relegated to other well-known diseases or otherwise disposed of.

Of the existence of such a disease as dermatitis herpetiformis, as illustrated more especially by the vesicular, pustular and bullous varieties, there is no question in my mind. It will be my aim in this communication to discuss the typical, or usual, expression of the disease. It is of the utmost importance to have a clear understanding on this point. The common, or usual, form of this disease must be agreed upon first, after which the several deviations may be taken up, and in due time disposed of according to the light we may possess. My remarks then will be confined to the ordinary manifestation of the disease.

Having thus presented these preliminary remarks, certain general observations may be made. In the first place it is essential to comprehension of the subject that in an affection so polymorphous in character the several varieties, or pathological forms, in which it may manifest itself be taken into consideration. As in the instance of eczema, we have here a disease capable of showing itself with several kinds of elementary lesions, and in varied combinations, and pursuing a course different from that of any other dermatosis. Without sufficient clinical experience with this disease it is not possible for one to realize the numerous and singular phases that it may assume in the course of its evolution. In most of the instances that I have observed it has proved an infinitely more protean affection than eczema. Perhaps its chief characteristic, it may be stated, is multiformity of lesion, manifested in the course of the natural evolution of the process—now a vesicular, now a bullous, now a pustular disease, while at one or more periods in the history all these forms of lesion may coexist, constituting a truly mixed eruption. And because of this characteristic, present to a marked extent in nearly all cases, it is essential in order to comprehend the whole process that the patient be retained under prolonged observation. In certain cases it is not difficult to conceive how, in error, vesicular eczema might be diagnosticated at one period, and a month or two later pemphigus. But it may be insisted upon that if a given case remain under observation for a sufficiently long period, multiformity of lesion, either in one or another attack, will sooner or later assert itself, and that this peculiarity will be repeated at variable intervals, and, moreover, as in no other disease.

The typical form is seen in the production of vesicles, blebs, and pustules, occurring either together, simultaneously, constituting a mixed eruption, or at different times, as more or less distinctly defined vesicular, bullous, or pustular eruptions. The commonest, most frequent expression is the mixed eruption, the vesicular element predominating. As good examples of this form I would refer to the two cases reported in

the *New York Med. Journ.* of April 9, 1887; to the cases of Mrs. N. P. (*Medical News*, June 2, 1883) and H. H. McK. (*New York Med. Journ.*, Nov. 15, 1884), in all of which vesicles, blebs, and pustules, were usually present simultaneously, the vesicular manifestation, however, prevailing. These cases represent the so-called herpes gestationis of Milton, Bulkley, and others, while similar cases have been from time to time reported with various other titles.

In presenting my views of the disease originally, it seemed advisable, in order to make so complex a subject as clear as possible, to describe the commonest phases of the disease under the heading of varieties, these being based upon the predominant elementary lesions existing, in the same manner as the varieties of eczema are designated. For it must be remembered that, while the process inclines to show itself by the simultaneous breaking out of two or more lesions, instances are not wanting where with one or another attack only one kind of lesion is present. Thus, in the history of several of my cases vesicles only existed for a longer or shorter period, after which, with a subsequent attack, pustules or blebs made their appearance. The varieties which it seemed there was no ground for adopting were the erythematous, the vesicular, the bullous, the pustular, the papular, and, clinically, the multiform. The erythematous variety has been illustrated by the case of the Maryland lawyer, *Smith* (*Med. Record*, April 2, 1887). The cases of N. B. E. (*New York Med. Journ.*, July 10, 1884) and of Capt. K. (*AMER. JOURN. MED. SCI.*, Jan. 1885), both show the bullous manifestation in a marked degree, while the pustular variety is exemplified in the cases of Annie McC. (*Journ. Cutan. and Ven. Dis.*, vol. ii. No. 8), and Daniel Welsh (*Medical News*, March 5, 1887). An example of the multiform variety presented itself in the case of Mrs. M. (*Medical News*, July 19, 1884), where all phases and stages of not only primary but of secondary lesions existed for a considerable period to such an extent that description would fail to convey satisfactorily an idea of the picture.

Let me here pause to refer briefly to the characteristic symptoms of the disease. The question may be asked, Do clearly defined characters exist whereby the affection may be distinguished from other diseases? Do the symptoms represent a distinct affection, or are they merely unusual forms of certain well-known affections; as, for example, of erythema multiforme, or of pemphigus? Are we in possession of sufficient facts and observations with which to build the structure we designate a disease? The latter question may, I think, be answered in the affirmative. To inquire into the matter, it may be stated that not only do well-defined elementary lesions of different kinds exist, but that certain manifestly abortive lesions also play a conspicuous rôle. To illustrate my meaning of the latter form of lesion, I would cite the ill-developed papules and papulo-vesicles encountered not infrequently in herpes zoster. In addi-

tion to the primary manifestations, secondary forms of eruption exist, which in chronic cases may constitute a marked feature. In examples where the erythematous efflorescence prevails, the lesions are ill-defined, more or less circinate small or large patches or areas of inflammation, upon which ill-defined, erythematovesicular or flat, or outspread vesicular, or *quasi-vesicular* lesions arise, occasioning what has been described by some writers as "vesicating erythema." A similar, if not identical condition, is sometimes noticed in the more advanced stages of erythema multiforme.

As to the form and size of the other lesions, the greatest diversity exists. At times the vesicles are minute, pin-head in size, in which case they are usually very numerous; at other times they are much larger, and generally vary greatly in size. They incline to be irregular, angular or stellate in outline, and may have a rounded or ovoidal form, and they moreover tend to flatten and to spread out rather than to become elevated. This latter fact accounts for the smaller vesicles being not infrequently difficult to discern; oblique light, it will be found, will usually show them most plainly. As a rule, they are tensely distended, and consequently have a glistening, pearly appearance. In short, they are herpetic. They occur in ill-defined, irregularly shaped and sized areas or patches, or they may be aggregated or more or less distinctly grouped. The same general features are common to the blebs. The pustules, as in the case of the vesicles, are either minute and numerous, occurring as a miliary eruption, or they are pea-sized or larger, in which case they are sparse. The miliary lesions are peculiar; they are flat, are yellowish or whitish, occur in irregular or circinate patches, and at times give the surface a punctate or studded appearance. They are generally discrete. The larger, pea-sized pustules, are usually surrounded with inflammatory, flat or slightly raised, angry-looking bases, and have a somewhat drawn up or puckered look, as is noted in isolated lesions of herpes zoster.

The papules (when they chance to occur) are usually large, the size of small split-peas, and are ill-defined manifestations, but have a distinctly herpetic look about them, and resemble somewhat the papule of abortive herpes zoster. Concerning the secondary lesions, it may be stated that pigmentation of a dirty-yellowish or brownish hue, and variegated, in chronic cases is generally a marked feature—much more so than in eczema of a like variety and grade. Crusting cannot be regarded as a conspicuous feature, but excoriations from scratching, together with considerable thickening of the skin, usually exist.

Having briefly considered the most striking peculiarities of the lesions individually, the picture they present when viewed collectively, as an eruption, may be referred to. The varied combinations, as has been already stated, constitute a conspicuous peculiarity of the disease. In no

other cutaneous affection are such singular combinations encountered: for example, erythema, vesicles, blebs; vesicles and blebs; vesicles, blebs, and pustules; or vesicles and pustules; existing frequently side by side in close proximity, accompanied with more or less pigmentation, excoriation, and other secondary changes. Mention may here be made of the subjective symptoms. Itching and burning, especially the former, are usually present in a marked degree. They are generally most distressing symptoms, coming on with each exacerbation or new attack of eruption. The desire to scratch cannot be resisted, and the act is indulged in until the lesions are lacerated, when some relief is obtained. Itching is most severe in the vesicular variety. In the pustular variety the subjective symptoms are generally milder, or may be altogether wanting for a longer or shorter period.

Attention has been called on more than one occasion to the fact of the eruption, viewed as a whole, being herpetiform. It is a point of importance to discuss and determine the sense in which this term is employed. What is meant by the expression herpetiform? It may be stated that the term applies to certain peculiarities of the lesions. In no wise does it involve any etiological point. By herpetiform is meant a resemblance to the several forms of eruption known as herpes, under which are included simple or febrile herpes, herpes zoster, and herpes iris. In these affections there occur so-called herpetic features, though as is well known they are not alike in all. Thus, the characteristic points in the eruption of herpes zoster are different from those of herpes iris, but notwithstanding this there exist certain other features which are common to both and belong to the group. When a disease is spoken of as being herpetiform it is not intended to convey the idea that it resembles one variety of herpes more than another, or in other words any particular variety of herpes, but rather that it possesses certain signs common to the group.

There are, in the first place, aggregation, clustering, or grouping, most pronounced in herpes zoster. A tendency to group is also seen in herpes iris, though to a less degree, in addition to which in this disease another peculiar trait obtains, namely, a disposition to creep or to spread on the periphery in a more or less circinate form. The same tendency occurs also in another affection of a different nature, namely, *tinea circinata*, caused by a vegetable parasite, and formerly regarded as one of the herpes group—the herpes circinatus of older writers. Vesiculation, often typical, also obtains in all forms of herpes; and in the case of herpes zoster pustulation is also common.

Still another herpetic sign, encountered in all varieties, is the tenacity or toughness of the lesions, no disposition to rupture spontaneously manifesting itself. A variable degree of inflammation attends all of

the herpetic affections, the least developed form appearing in simple herpes and the most marked form in herpes zoster and herpes iris.

In herpes of the face the lesions are, as a rule, cold—that is, show but little inflammatory areola, the vesicles arising abruptly from the surface unaccompanied by much surrounding cutaneous disturbance. In herpes of the muco-cutaneous or mucous surfaces the inflammation is usually much more pronounced. In zoster, as stated, this symptom is generally extensive and is, moreover, peculiar, being circumscribed, intense around the vesicle, and causing the whole lesion or group of lesions to have a somewhat drawn-up appearance, especially noticeable around single lesions and small isolated groups. To a much less extent the same condition occurs in herpes iris; but here another herpetic sign manifests itself, that of spreading peripherally, in the form of one or of several series of more or less well-defined rings of lesions, those which formed first, in the centre of the patch, undergoing involution. The same evolution on a smaller scale takes place in *tinea circinata*, and it seems probable to me that the kind of irritation to the cutaneous nerves, though of very different origin, is similar in the two diseases; the clinical picture and the evolution of the disease certainly would justify such a conclusion.

Thus it will be noted that the word herpetiform includes more than one idea. It denotes several modes of distribution of the lesions quite different in form. In zoster only does the eruption manifestly occupy the course of a nerve trunk, branch, or filament. In the other varieties no such marked relation to the nerves can be proved, though there is reason to believe, in my opinion, that the cutaneous nerves are at fault and that some peculiar kind of nerve disturbance is directly the cause of the eruption.

Much is to be learned from noting the natural course of the disease. It is peculiar. It is different from that of any other process. As a rule, it pursues a remarkably chronic course, extending over a period of years. I have reported two cases where it had persisted thirteen and eleven years respectively, and was still active with no prospect of cure. Also, other cases in which the patients had been sufferers for from one to five years. Instances are also on record where it lasted only a few months, the patients usually being women in the parturient state, the eruption appearing before and terminating soon after delivery, as in the case of Mrs. N. P. (*Medical News*, June 2, 1883). The tendency, therefore, is very strongly toward chronicity, and this too in spite of both local and internal treatment, which in many cases seems unavailing.

Another characteristic may be mentioned, that of the eruption appearing in the form of more or less distinctly defined attacks, or crops, each lasting from two to six weeks, followed by a respite, more or less complete, of weeks or months. Recurrences at variable periods, usually

short, are the rule. Another singular feature in the evolution of the disease is that no definite order is followed in the manifestation of the several varieties of the affection. Thus, in a given case the first efflorescence may be vesicular and bullous, the next pustular, while at a late date vesicles, blebs and pustules may appear together, and such variations may occur *ad infinitum*. I have taken the trouble to make an analysis of this point in connection with my reported cases, and find that in one, that of Captain K. (THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, January, 1884), vesicles first appeared, followed on the sixth day by blebs; the second attack, shortly after, was pustular; the third, vesicular, bullous, vesico-pustular and pustular; the fourth, vesico-pustular, and so on. In another case of long standing (thirteen years or more) that of H. H. McK. (*New York Med. Journ.*, Nov. 15, 1884), the history is that of, first, erythema or urticaria; then pustules; the third attack vesicular and bullous; the next vesicular and pustular; the following vesico-pustular, vesico-papular, pustular, erythematous, pustular, vesicular and bullous, and vesicular; and so on until one becomes weary of noting the numerous and capricious changes.

Thus, from a study of my cases, it will be seen that the process follows no regular order in the manifestation of the lesions. The order is emphatically variable, and this is such a common feature in the evolution of the process that it must be regarded as being characteristic. It may be urged by some observers that a similar course is sometimes noted in eczema of long duration, but the variations here from one kind of lesion to another are seldom, if ever, so rapid and so sharply defined as in the affection under consideration.

Concerning the evolution and involution of the individual lesions, it may be said that they differ from those of other similar diseases. They break out, as a rule, with considerable rapidity, a few days or a week generally being long enough to bring forth a fully developed crop. New lesions may continue to appear for another week or two, when the decline of the eruption, as a whole, usually begins, the earlier lesions having in the meantime largely disappeared. The decline having once set in usually proceeds rapidly.

It will be inferred from what has been said, that the disease is a severe one, and such is the case. Apart from the chronicity and obstinacy of the process, the attacks are generally most distressing, not only on account of the persistency of such a disagreeable form of eruption, but of the intolerable itching and burning. Such sufferers, moreover, may be confined to bed for periods of weeks or months; nor can they foretell what their condition may be from month to month. The presence or absence of systemic disturbance, characterized by malaria, chilliness and fever, will depend largely upon the gravity of the case, and upon the nature of the cause at work. For example, in the parturient state such

general symptoms may be present in a marked degree. On the other hand, in simpler cases, depending upon different causes, as, for instance, nervous depression or shock, they may be slight or even wanting. When present they are especially noticeable with each exacerbation.

In arriving at the diagnosis, the history, course, distribution, and evolution of the lesions, their varied combination and peculiarities, together with the subjective symptoms, are all to be taken into consideration. While the diagnosis in most instances is readily made by an ordinary examination, cases occur where further observation is demanded. The evolution of the process must always prove an important point, and must in all cases be kept in mind.

What are the relations of dermatitis herpetiformis to other well-known diseases of the skin? Is it an unusual form of one or another of the recognized diseases, or is it a disease possessing distinctive features, and thus entitled to a place in the list of cutaneous affections? Are the features which characterize it sufficiently defined to render such distinction clear? To the latter question I would answer yes, and I shall now ask attention to the diseases which it most closely resembles.

At an early period in my studies it was noted in some cases that the eruption at certain stages of its evolution bore resemblance to familiar affections. Thus in the notes of several of the reported cases we find that the provisional diagnoses of "tinea circinata," "eczema," "ecthyma," "herpes," and "pemphigus," were on certain occasions made; and not only were such views entertained by myself, but also by other observers, some of whom were inclined to regard the vesicular and bullous varieties as forms of herpes, designating them variously as herpes gestationis, herpes pyæmicus, herpes pruriginosus, and herpes circinatus bullosus. In considering this subject, therefore, the importance of keeping separate in mind the several varieties of the disease, which, existing alone, present such different clinical pictures, becomes manifest.

Thus, the casual observer would, I think, not be likely to look upon the erythematous and the pustular varieties as belonging to one and the same process. The erythematous variety bears a closer resemblance to erythema multiforme than to any other efflorescence, and, as I have pointed out in one of my cases (*Medical Record*, April 2, 1887), actually possesses some of the features common to that disease. Certain of the same herpetiform characters exist in both. The manifestation appears in some cases to be an exaggerated phase of erythema multiforme, pursuing a chronic course. In two instances that come to mind unusual forms of erythema multiforme seemed at certain periods to exist, but with the subsequent setting in of other dissimilar varieties of eruption this view was naturally dispelled. The fact of these cases pursuing a chronic course in itself militated against such an opinion. It is well known, authors do not admit a chronic erythema multiforme; it is

regarded by all writers as an acute process, and, moreover, as being a simple disease terminating in spontaneous recovery. Such are the views, at least, of to-day. I may remark that the efflorescence differs from that of common erythema multiforme in the lesions being less sharply defined; they are less pronounced both in outline and shape, consisting rather of indistinctly defined areas of inflammation than of defined, marginate patches.

In turning to herpes iris, which, as is generally recognized, is most intimately allied to erythema multiforme, and, moreover, which in some cases is but an advanced stage of that disease, it is obvious that here too exists an affection possessing features in common with dermatitis herpetiformis. It must be stated, however, that among the cases observed by me the diagnosis of herpes iris would hardly have been made by anyone. The chronicity of the process, as in the case of erythema multiforme, would have excluded herpes iris. The lesions, moreover, are by no means those of herpes iris; they appear more virulent and are accompanied by a profounder degree of cutaneous disturbance, as shown by the character of the inflammation and by the usually violent subjective symptoms, the latter being in most cases wanting in herpes iris. In herpes iris, too, the eruption is usually localized, as, for example, on the hands and feet. General herpes iris, distributed extensively over the whole surface, is rare. As with erythema multiforme, it is regarded by authors as a benign affection, always pursuing an acute course and ending in spontaneous recovery; but mention may be made of the well-known fact that it is subject at varying intervals to recurrences.

The bullous variety, when it happens to exist alone may resemble pemphigus vulgaris, and may be mistaken for that disease. With the coexistence of vesicles, vesico-pustules, and pustules, confusion in the diagnosis can scarcely arise. This peculiar commingling of different kinds of lesion does not obtain in pemphigus; and, moreover, in the further evolution of the process, when a crop of pemphigoid blebs are followed by a crop of herpetic pustules and subsequently by a crop of herpetic vesicles, it becomes plain to the observer that true pemphigus is not the disease we have to deal with. Such a history cannot be reconciled with pemphigus, which is always a bullous manifestation, whether it pursues an acute or chronic course, and whether it be a first attack or a recurrence. The case of N. B. E. (*New York Med. Journ.*, July 19, 1884), illustrating the bullous form of the disease, was at several periods of its existence looked upon as a pemphigus by the physicians in charge, but the subsequent changes and the evolution of the disease caused this view, in time, to be abandoned.

Several other recognized diseases may be briefly referred to as exhibiting signs in some cases of being present; thus, occasionally symptoms of

urticaria are developed, the condition seeming to be one midway between that disease and erythema multiforme, but, nevertheless, the sudden advent and the intensely itchy character of the efflorescence suggest urticaria. The bullous form of urticaria would not, I think, occur to the observer at any stage of the disease. In the case of James W. (*Phila. Med. Times*, July 12, 1884), exhibiting at the time pustules, which were flat, outspread and creeping, the diagnosis of pustular syphilis (ecthyma-form) had been previously made by the physician and the man had been actively treated for that disease. Such a blunder, however, is not likely to occur with one who has had any dermatological experience. There is nothing suggestive of syphilis with any variety of the disease. The case just referred to at a subsequent period also bore some resemblance to an aggravated phase of tinea circinata. The minute, pin-head sized, yellowish, flat pustules immediately surrounding the circular and spreading patch suggested a possible vegetable parasite at work.

Mention remains yet to be made of certain so-called diseases, such in particular as the hydroa of some authors and the impetigo herpetiformis of Hebra. But these forms of disease cannot be satisfactorily disposed of without entering into considerable discussion, and hence it seems best not even to touch upon them on the present occasion. The paper is sufficiently complete without entering upon this subject.

In conclusion, a word must be said regarding the name dermatitis herpetiformis, and the reasons for selecting this title. A new name was required, and it became merely a question to find out which should be the most expressive, and at the same time one which would not encroach upon occupied territory. Considering the marked inflammatory nature of the process the general term dermatitis was deemed unobjectionable. The fact that multiformity was so conspicuous throughout the course of the disease, early in my studies suggested the adjective multiformis as being appropriate; it, moreover, appeared to be broad enough to embrace, if required, a long list of more or less similar cutaneous manifestations. But the fact that our nomenclature already contained a well-defined and generally recognized dermatitis of a different nature with a very similar title, namely, erythema multiforme, seemed good reason for looking further. Confusion, or even likelihood of such, was above all to be avoided. Dermatitis multiformis might readily and naturally be construed to be an advanced stage of erythema multiforme. Another and a more expressive and definite title was, therefore, considered desirable, and this, it was thought, existed in herpetiformis, especially since this term was already in use in connection with an allied disease described by Hebra as impetigo herpetiformis. Herpetiformis, moreover, indicated the most characteristic feature of the pathological process. It was regarded as an essential feature, one without which the disease did not

exist, and hence was appropriate—more so than *multiformis*, which was applicable only to a clinical feature of the disease. The name originally given still seems to me appropriate, and may for the present be continued in use, at least until our knowledge of the disease is more complete than now.

DOUBLE CONGENITAL DEFORMITY OF THE TIBIA.

BY JAMES K. YOUNG, M.D.,

SURGICAL REGISTRAR, AND ASSISTANT SURGEON IN THE ORTHOPÆDIC DISPENSARY OF THE UNIVERSITY HOSPITAL.

THE extreme rarity of cases, and the meagre literature on the subject of congenital absence of the tibia, are sufficient excuse for recording a case which it was my privilege recently to study.¹

Cases of congenital absence of other parts appear to have been more numerous. Ehrlich² and Hirst³ have recorded cases of rudimentary development of the femur. Roger Williams, a case of congenital absence of femora.⁴ Meyersohn⁵ has collected eighteen cases of fibular defect, a condition also present in one of Ehrlich's cases. Wenzel Gruber⁶ has contributed two communications on congenital absence of the radius, Malgaigne⁷ two cases, and Ehrlich, Parkes,⁸ Reeves,⁹ and Kaczande,¹⁰ have each recorded a case, while Schnelle,¹¹ and Senftleben,¹² and A. Sydney Roberts,¹³ have each recorded cases of absent ulna.

St. Hillaire, in his classic treatise,¹⁴ has made one simple division of anomalies, hemeteres, and three complex divisions, heterotaxis, hermaphrodism, and monstrosities, and has placed these deformities under Class V. of the first division as "anomalies by numerical diminution of the part."

Förster¹⁵ has given but three divisions:

- "1. Complete or partial absence of an extremity.
- "2. Deformities so great that the parts are scarcely recognizable.
- "3. Diminution in size, in which the extremity is properly formed, but remains undeveloped"—and it is quite evident that they belong to the first. Tarnier¹⁶ has again adopted the plan of St. Hillaire. In the

¹ Service of Dr. A. Sydney Roberts, Orthop. Dispensary, University Hospital.

² Virchow's Archives, Bd. c. p. 120.

⁴ Lancet, xii. 84.

⁶ Virch. Arch., Bd. 32, 1865, and Vir. Arch., Bd. 40.

⁸ Path. Trans., Lond., xxxiii. p. 238

¹⁰ Virch. Arch., 1877, p. 409.

¹¹ Ueberangeb. Def. v. Rad. u. Ulna, Inaug. Dissert. Göttingen, 1875.

¹² Vir. Arch., Bd. 45.

¹⁴ Hist. gén. et part. des Anom. de l'organ. chez l'homme, 1832.

¹⁵ Die Missbild. des Menschen, 1861.

³ Trans. Phila. Obstet. Soc., Sept. 1887.

⁵ Virch. Arch., Bd. 76, p. 330.

⁷ Leçons d' Orthopédie.

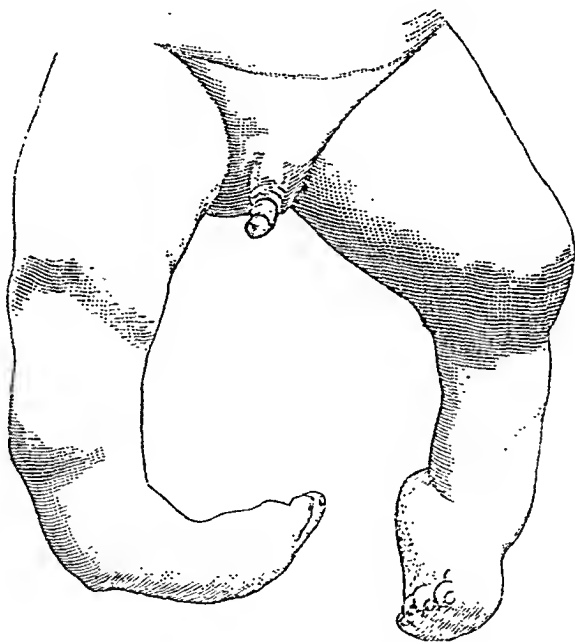
⁹ Bodily Deformities, p. 330.

¹³ Annals of Surgery, Feb. 1886.

¹⁶ Traité de l'art des Accouch., vol. ii.

systematic works of the three former writers, and in those of Ammon,¹ Otto,² Ahlfield,³ Little,⁴ and others, reference is made to total absence of the upper and lower extremity, and to cases of partial defect of other bones, but of total absence of the tibia there is not a case. In fact, not until 1861, when Billroth⁵ recorded his case, was this anomaly recognized and described. Since then, as far as the literature is accessible, only eleven, including Billroth's, have been recorded; they are those of Albert,⁶ first; Meyersohn,⁷ Pauli,⁸ Albert,⁹ second; Parker,¹⁰ Ehrlich,¹¹ three cases, Thümmel¹² and Busachi.¹³

CASE.—The subject of this deformity is F. McG., male child, three months old, born in Philadelphia of Irish parentage, and good family history. The mother during the entire gestation worked laboriously as a domestic. He is well formed in other respects, and intelligent looking. Both lower limbs are deformed.



¹ Die angeborenen chir. Krankh. des Menschen, Berlin, 1839.

² Monstrorum Sexcent. descr. anat., 1841.

³ Atlas des Missbild. des Menschen.

⁴ Lectures on Deformities, 1853.

⁵ Ueber einige durch Knochendefecte hervorgerufene Verkrümmungen des Fusses. Arch. f. klin. Chir., I. S. 201.

⁶ Albert: Implantation des Fib. bei angeb. Def. des. ganz. Tibia, Wien. med. Presse, 1877.

⁷ Meyersohn: loc. cit.

⁸ Ein Fall Klumpfuss durch Mangel des Diaphyse und der unteren Epiphyse des Tibia. Arch. f. klin. Chir., Bd xxiv.

⁹ Zwei seltene Fälle von Missbild. des Extremitäten, Wiener med. Blätter, 1880.

¹⁰ Congenital absence of radius, etc., Pathol. Trans., Lond. xxxiii.

¹¹ Ehrlich, loc. cit.

¹² Ein Fall von congen. Def. d. ganz. Tibia (Halle), 1886.

¹³ Gior. della v. Accademia medico-chir. di Torino, 1887.

On the right side the femur is of proper length, with the hip- and knee-joints well formed, and the patella is present. The head and shaft of the fibula are unusually well developed, and measure $3\frac{1}{2}$ inches, extending $1\frac{3}{4}$ inches below the end of the tibia to be loosely articulated to the foot in its normal relation with the astragalus, but to the inner side. Only the upper portion of the tibia is present. This rudiment is pyramidal, about 1 inch long, the base of which articulates with the femur, and the free extremity projects forward and outward on the surface of the leg. The skin over the apex is elevated, and its centre umbilicated. The foot is in a position of extreme varus; the dorsum looks directly downward on a plane with the end of the fibula. The foot contains four toes, the great toe being absent.

On the left side the hip-joint appears normal. The femur is of proper length, but the articular surfaces on the distal extremity are poorly formed. The patella and tibia are entirely absent. The fibula measures $3\frac{1}{2}$ inches. Its head and shaft are unusually well developed. The knee is flexed, and the head of the fibula is luxated backward into the popliteal space. The distal extremity articulates with the foot, the latter being in the same marked condition of extreme varus as on the right. This foot also contains but four toes. The feet are both freely movable, and can be brought into a normal position.

Here it will be observed that the tibia is partially absent on the one side, and entirely absent on the other, the feet being in a position of extreme varus.

In the cases of Billroth, Pauli, Albert (1st), Ehrlich's 1st and 2d cases, Thümmel, Busachi, and Meyersohn, the absence is unilateral, in all cases on the right side, being completely absent in the cases of Billroth, Thümmel, and Busachi, and only partially so in the others.

In the cases of Albert (2d), Parker, Ehrlich (3d), and the writer's, the deformity was bilateral, being completely absent on both sides in the cases of Parker and Ehrlich.

In the cases of Albert (2d) the partial absence of the right and the complete absence of the left, with the accompanying deformity, resemble my own so closely that his report is inserted here for comparison.

Albert describes his second case thus: "The defect is bilateral, the tibia exists in the form of a pointed cone, whereas the left is completely wanting. On the right foot are four toes, on the left only three. . . . The patella is small and elliptical in form. The fibula is strong. The muscles mostly take their origin in the fibula and are all present."

Again, Parker's and Ehrlich's (3d) cases are interesting as being the only completely absent bilateral cases recorded. They differ chiefly in the development of the femur, which in the former was "well formed except in the lower end, which was modified in shape and less expanded;" whereas in the latter the femur was a cone on both sides, the apex being the proximal extremity, and the distal extremity being poorly formed and without condyles. In both, the patellæ and tibiæ were entirely absent, and the fibulæ were short and unusually well de-

veloped. The feet were in the position of varus. The former contained six toes on each foot, the latter only four on the right.

Careful dissections of the parts concerned in the deformity were made in all cases except those of Parker, Albert (1st), Busachi, and the writer's, in none of which was the opportunity afforded.

From a careful study of these we find the patella present and well formed in all cases except Albert's (2d), in which it was small and elliptical, and Parker's and Ehrlich's (2d) and (3d), in which it was absent. The joints were in most cases poorly formed, the ligaments being relaxed and wanting, and the condyles and synovial sacs being irregularly formed. In those cases in which a portion of the tibia remained, it was found in all cases to be the right upper epiphysis, being pyramidal in shape, the base forming part of the knee-joint. A remarkable feature in this connection, and one of great significance, was the change in the skin over this conical extremity. The skin was mammillated, with a depressed centre, freely movable and appeared most like a small stump cicatrix, and had, in the first case of Ehrlich, a membranous band attached to it.

In all cases the fibulæ were shorter and unusually well developed, except in the case of Billroth, in which he says it was normal. This, as Ehrlich remarks, is difficult to understand, as the fibula has to perform the functions of both bones. Particularly was this true of the head of the fibula, which was also luxated backward. The feet, which were well formed, were in all cases in a position of varus, in that of Albert (1st) very moderate, and in the case of Pauli and the writer's they were completely supinated.

Some of the cases contained supernumerary toes, others a diminution in number. The muscles were in all cases well developed, being irregular in their origin and insertion; the vessels and nerves were anomalous in their division and distribution, but from a careful study of these nothing could be adduced.

The difficulty of ascertaining the cause with any degree of certainty, at once becomes apparent when we appreciate the early period at which such defects must necessarily occur.

The popular theory of hereditary influence and maternal impression would find support in the cases of Parker and Thümmel, there being in the former a "remote family history on the mother's side of a similar deformity," and "the mother states that she had a presentiment while pregnant that the child would be deformed;" and in the latter the mother laid great stress on the fact, that during the last half of her pregnancy she was shocked by a man who had a wound on his right leg, and attributed the deformity to this. The latter we are particularly inclined to doubt, as the deformity had doubtless existed many months before the shock, which led to the coincidence, occurred. That

the deformity is not the result of inordinate muscular contraction through disease of the nervous centres,¹ we are led to believe from the fact, that the power required to produce such a result is out of all proportion to the development of the muscles at this early period.

With the opinion of Billroth that they are congenital luxations, followed by a disappearance of the tibia, we cannot agree, first, because in many of the cases a large rudiment of the tibia remained, and, second, because such an explanation could not be applied to the simultaneous presence of defects of the upper extremity, such as occurred in some of the recorded cases.

We are inclined to accept the view of Hasse² and Pauli, or Darestie,³ that at a very early period of intrauterine life, when the amnion was in contact with the foetus, the membrane experienced a serous inflammation, resulting in a plastic exudate which led to an adhesion between the amnion and the integument; that later by the increase of the liquor amnii these bands were gradually broken up, resulting in distortions, fractures, and amputations. In favor of this theory are the membranous attachments at the point of the rudiment of the tibia, and also in the case observed by Dr. Keihn,⁴ a hole was found in the foetal membranes, exactly corresponding to the fragment of the tibia.

These bands may also be formed by the bursting of the amnion,⁵ the chorion retaining the integrity of the ovum, and the rolling of the amnion on itself into bands, and the active movements of the child.

In the case of Meyersohn the process was more marked, the result being an amputation of all but the fragment of the tibia. That this was not the result of pressure of the umbilical cord is now generally accepted, because the cord can only cut down to but not through the bone, being harder than foetal tissues, but softer than bone; and also in this case by the absence on the other side of the fibula and patella.

In reference to the marked club-foot present in all these cases, the absence of the internal condyle, and the unopposed action of the adductors are sufficient explanation, to my mind, for this deformity. That they were not the result of deficiency of liquor amnii and intrauterine pressure is clearly proven by the absence of pressure marks on other parts; the rare association of club-hand (but one case⁶); the fact that no appreciable diminution in the quantity of liquor amnii was observed in these cases over previous or subsequent labors, but more particularly by the case⁷ recently observed "of double equino-varus in a twin, the

¹ Little: *Loc. cit.*

² Vide Pauli: *Loc. cit.*

³ Mém. sur les anomalies des membres, etc. *Journ. de l'Anat. et de la Phys.*, 1882.

⁴ Vireh. Arch., Bd. c. 114.

⁵ G. Braun: Oesterreich. z. f. prakt. Heilkunde, 1865, Nos. 9 and 10. W. Lebedeff, *Annales de gynéc.*, Avril, 1878.

⁶ Ehrlich (1st case): *Loc. cit.*

⁷ A. Sydney Roberts: *Clinical Lectures, Med. News*, March 13 and 20, 1886

other child showing no deformity whatever." Aside from these, the theory of Berg,¹ and Parker and Shattuck of failure to rotate, would offer the most satisfactory explanation, supported as it is by embryological research.

The treatment will depend on the degree and inconvenience and the condition of the bones. Amputations at the knee were performed in the cases of Billroth, Pauli (Carden's method), and Thümmel. Albert preferred a more conservative method and performed an intercondyloid resection of a wedge-shaped piece, so that the fibula would come more directly in the line of support. Busachi, who was inclined to follow the plan of Albert, thought that a tenotomy of the tendo Achillis with energetic massage long continued would suffice to bring the foot into an improved position, and under the existing conditions decided against an immediate operation.

In the writer's case massage was advised with the use later of lateral shoes and supports. This seemed most advisable from the fact that the case being bilateral nothing could be gained by operative interference, and further from the information derived from Parker's patient, in whom the deformity was bilateral, who at three years supported himself and walked on the fibula, but required the aid of a chair to steady himself.

222 SOUTH SIXTEENTH STREET.

SIX SELF-INFLICTED CÆSAREAN OPERATIONS WITH RECOVERY IN FIVE CASES.

By ROBERT P. HARRIS, A.M., M.D.,
OF PHILADELPHIA

FOR three hundred years, obstetrical writers have been endeavoring to establish, from historical records, a certain age for the operation of gastro-hysterotomy; some claiming for it an origin in the time of the Cæsars; others in that of the Jews, in the early centuries of the Christian era; and others again, asserting that there is no reliable record earlier than the year 1500, when Jacob Nufer, a German cattle-gelder, operated with success in saving his own wife. Some have denied the story of the Nufer case, and have given the credit of the initial operation to Trautmann, of Wittemberg, who performed it in 1610, and wrote a monograph descriptive of it. The Nufer case rests upon the authority of Prof. Gaspard Bauhin, of Basle, whose father, Jean Bauhin, also a physician, was born in Amiens, France, in 1511, and settled in Basle; where Gaspard was born in 1550. In 1582, Gaspard translated into

¹ Berg: Seguin's Archives, vol. viii. p. 226.

Latin the little work of Rousset on the Cæsarean operation, which had appeared in 1581, and added to it the account of the Nufer case. As there were six generations of physicians in the Bauhin family, and John Nufer, a twin son of Jacob, was born to him in the next labor after the operation, became a Prefect of the town of Siegerhausen, and lived to the age of eighty-three years, thus being long a contemporary of Jean and Gaspard, it is not to be denied that the record could have easily come into the possession of the latter. Besides, Frau Nufer, who does not appear to have had any pelvic obstruction, became later the mother of four other children, at single births. We see no reason in our day to discredit the Nufer story, since we can corroborate it by two parallel cases, equally successful. On January 9, 1738, as shown by reliable medical authority, Mary Donnally, an Irish midwife, operated with success to the mother, on Alice O'Neill, near Charlemont, in Ireland;¹ and in 1838, as related by the late Dr. Bennet Dowler, of New Orleans, an old negro midwife repeated the same operation, on the plantation of Judge Waggaman near that city, with a case-knife, when intoxicated, the subject being a slave primipara in natural labor, at the age of twenty. The woman and child escaped death.²

If we are permitted to reason inferentially, we may come very naturally to the conclusion that the Cæsarean operation must have been performed long before the time of the Cæsars, and possibly as early as the days of the Pyramids. If history is in large measure a repetition of what has already occurred in a former age, and ignorant, excitable, and impatient women have in several instances within one hundred and fifty years, performed the Cæsarean operation on themselves, who had never heard of it, we may very naturally infer that the self-inflicted operation must have been performed thousands of years ago.

My recent investigations have brought to light the records of eleven cases where women far advanced in pregnancy had been ripped open through the abdominal and uterine walls, by the horns of bulls, oxen, cows, the India buffalo, and the American bison; after which fearful injury, seven women and five children were saved. This brings up the question of precedence, Did the woman or an animal make the first Cæsarean section? Moses, the great Jewish lawgiver, recognized the propensity of the bovine race to rip with the horn 3500 years ago, and enacted special decrees to cover cases where men and women, menservants and maid-servants, should be thus injured, with penalties attached.

Again, we have the sword in the hand of a soldier contending for the precedence, as the first Cæsarean instrument, and here we are not left to a conjecture, but have the facts of history to show that this weapon

¹ Edinburgh Essays, vol. v. page 439.

² New Orleans Medical and Surgical Journal, vol. xi, p. 13.

was certainly used after the taking of towns and cities in battle, to rip open the bellies of "*women big with child*," many centuries ago. Hazael of Damascus, King of Syria, who reigned a century before Rome was founded, or more than 2700 years ago, had this done to his Jewish captives by the soldiers under his command; and this practice was by no means peculiar to him, but prevailed in the days when prisoners taken in the sacks of cities were at once massacred, unless preserved for use as slaves. If the words "*ripped out*" are correct, as put into the mouth of Macduff, by the historian Raphael Hollinshed, when stating to Macbeth the manner of his delivery, then the instrument of his delivery is much more likely to have been the horn of an animal than the sword of a soldier, from the fact that the latter spared the life of neither mother nor foetus, being especially used for the destruction of both. Some would have us believe that the story of Shakespeare indicates that Great Britain may have had an instrumental Cæsarean delivery as long ago as 850 years; but we are not of this opinion, as the horn method offers a much more plausible explanation of his words. One horn-delivered boy in this country was in excellent health at the age of six, two years ago, and is probably still living. Another grew to manhood, at San Pablo, Mexico, and was living in 1875, aged twenty-five years. (*Amer. Journ. Obstet.*, Oct. 1887, p. 1037.)

The Cæsarean operation is now practised in the heart of Africa, even to the washing, in preparation, of the abdomen of the patient, and the hands of the operator, in palm wine, a favorite ablution fluid of the Egyptian embalmer. Attention is paid to the thorough emptying of the abdominal cavity, and the contraction of the uterus; and the abdominal wound is closed by what Ambroise Paré, in 1581, called "*the ancient method of gastroraphy*," more recently known as "*the harelip-pin suture*." In 1879, this operation was performed at Kahura, Uganda, with complete success to mother and child, in the presence of Robert W. Felkin, F.R.C.S.,¹ by a male native, who was certainly quite an adept at making the section, and managing the case, the wound being healed and all of the pins removed by the sixth day. Mr. Felkin saw the woman and child up to the eleventh day, watching the result with much interest. No one can tell or even conjecture how old this operation may be in Africa. Possibly, when the language is well understood, some medical missionary may learn the traditional history of its introduction. As to what may have happened in the early days of Egypt, we are left in entire ignorance. Women dying undelivered must have come under the hands of the embalmers, who, in their eviscerating process must have learned the possibility of delivery by the knife, with the anatomy of the organs involved. Whether this was ever acted upon in

¹ *Edinburgh Med. Journ.*, April, 1883, page 922.

saving the fœtus from a dead or living woman, the inscriptions on the mummy cases have not as yet informed us. That the Egyptian ox may have tried his horn in gastro-hysterotomy, is very probable, as he was certainly, according to his sculptured representations, well armed for the act of laceration.

That women are ready at the present day, under certain conditions of excitement and reckless disregard of consequences, to cut themselves open and pull out their fœtuses and secundines, we have abundant evidence in the cases I am about to reproduce from their original records. These women resided respectively in Jamaica, the United States, Bohemia, Roumelia, Italy, and Russia, and all belonged to the lowest working classes, living for the most part in the open country. In one married and two single women the pregnancy was illegitimate.

CASE I.—1769. On a plantation between Kingston and Spanish Town, Jamaica. Reported by Dr. Benjamin Moseley, who says it happened within his knowledge.

The operator and subject was a slave, four-para, of Mrs. Bland, a midwife, and in labor, when she opened her abdomen to the left of the *linea alba*, with the hilt of a broken butcher-knife, cutting at one stroke into the uterine cavity and making a wound in the thigh of the fœtus, two and a half inches long and three lines deep. The child was extruded, and a negro midwife was called in, who cut the cord and returned the part attached to the placenta, as well as a considerable portion of protruding intestine. A few hours later, the surgeon who attended the plantation reopened the wound, which had been rudely dressed by the old midwife, washed the intestines free from dirt, delivered the placenta through the wound, and then reclosed it. The child came into the world healthy and strong, but died on the sixth day of the "jaw falling" (*trismus nascentium*, a prevalent and very fatal malady among black infants in the West Indies).

The woman was exhausted for a few days from loss of blood, then fever set in, which yielded to treatment, and in six weeks from the self-infliction she was able to resume work. At her next labor, which occurred a year or two later, she would have attempted the same operation, but was prevented, and compelled to submit to a natural delivery. Her first three labors were easy and natural, but being an impatient and violent-tempered woman, she resorted to the Cæsar-cut as a more rapid measure of relief from the pains she had to endure under nature's method. (Moseley on *Tropical Diseases*, London, 1803, fourth edition, pp. 108, 109.)

CASE II.—January 29, 1822. Nassau, Rensselaer County, New York. Reported by the President, Dr. Samuel McClellan, to the Medical Society of Rensselaer County, at its semi-annual meeting in Troy, on January 14, 1823.

The operator and subject was a servant of Mr. Jacob Kipp, a quadroon of the age of fourteen, illegitimately impregnated with twins, and in active labor, when she opened her abdomen and uterus with a razor. While the family were at dinner, she went a distance of perhaps fifty rods (nearly two hundred yards) from the house, and placed herself on a snow-drift, near a fence, where she was first discovered by Mr. Kipp in the act of covering something with snow, which afterward proved to be a naked child. As soon as she perceived that she was observed, she immediately ran to the house, with a second child hanging out at a wound she had made in her abdomen, together with a considerable portion of her intestines; put away a razor and large needle which she had carried with her for the operation, and shortly began to complain; when Dr. E. D. Bassett was called in, who extracted a full-grown fœtus from the abdominal wound, through which it was in part protruding, and removed

a placenta having two umbilical cords, through the same opening: he also introduced his hand into the uterus *per vaginam*.

At this stage, Dr. McClellan, who had been called in consultation, arrived, and thus describes the case: "On examination I found an irregular incision of about four inches in length, extending in a diagonal direction as respects the abdomen, about two inches above the umbilicus; and an incision of about two inches in length, at nearly a right angle with the former, extending toward the sternum. The lower part of the abdomen was considerably distended with blood. Our attempts were, in the first place, directed to the evacuation of the blood contained in the abdomen, which was partly effected by a change of posture and slight compression. We then brought the lips of the wound in contact by the interrupted suture, dressed it with lint spread with emollient unguent, and secured the whole with a broad bandage."

Dr. Bassett continued as the attendant alone, and in a few weeks the girl made a perfect recovery. He saw her alive and well, at service in Troy, six years later.

Nothing is said of the fate of the children, but doubtless both were lost. Dr. McClellan believed "that the incision was made immediately preceding the rupture of the membranes, and that the first child was delivered *per vias naturales* in the third pain after the rupture." (*New York Medical and Physical Journal*, 1823, vol. ii. pp. 40-42.)

Dr. Fleetwood Churchill, whose statistics abound in inaccuracies, credits this case to "Mr. Cellen," of New York, as the operator, and states, that the woman had a distorted pelvis, and that *her child* was saved. Where he procured such an account as this, it is difficult to conceive; his collaborator must have been very careless in making his researches.

CASE III.—September 27, 1876. Tetschen, Bohemia, Austria. Reported by Dr. Von Guggenberg, and patient exhibited, at the annual meeting of Bohemian physicians at Tetschen.

The operator and patient had previously given birth to seven children, four of whom were born without medical assistance, two with forceps, and one after craniotomy. Dr. Von Guggenberg was called in at 2 A. M. of September 28th. "He found the patient lying in a miserable house, on a wretched and dirty bed, exhausted and bloodless, and only capable of making affirmative and negative signs. On removing a dirty petticoat which covered her, an incised wound was seen on the right side of the abdomen, passing downward and inward, from which a large coil of intestine protruded, the greater part of which, covered with dried blood, rested upon a dirty, blood-soaked straw sack. Hemorrhage seemed to have ceased from every part of the wound, and the uterus was contracted to the size of a child's head. A fully developed, but dead, male child lay between the patient's knees. Clean linen was procured from a neighboring house, and with a piece soaked in oil the protruded intestines were carefully wiped and returned, and the wound sewed up. The incision was about $3\frac{1}{2}$ inches long, and slightly S-shaped. It was dressed with a five per cent. carbolic solution, fixed with strapping, and the abdomen was carefully bandaged. By the afternoon the patient was able to speak, and next day the history was taken."

Labor began on the 24th, and ceased on the afternoon of the 25th, to be renewed on the 26th. Midwife felt head presenting. On the 27th, convulsions came on, with agonizing pain and great abdominal distention; movement of child ceased. The woman had heard of the Cæsarean operation, and determined to perform it to obtain relief. She divided the skin slowly; then made a second and a third incision; the child not appearing, she made another cut, when a large jet of blood spouted, and exposed the placenta, which she removed. One foot of the child came into view, and by it she pulled out the entire fœtus, the head offering considerable resistance. She then cut

the cord, laid the child, which she believed dead, beside her, and threw the placenta on the floor.

The patient had not evacuated her bladder or bowels since September 24th; she passed urine on the afternoon of September 28th; bowels were open on October 2d. Pulse 120 on day after operation; temperature never very high. Wound discharged freely, but was united by October 3d. The woman soon resumed her work, and her health was reported as perfectly restored. (*Brit. Med. Journ.*, Feb. 21, 1885, p. 392.)

CASE IV.—Date not given; probably 1879. Pristina, Turkey. Subject and operator a peasant woman, who had been suffering the pains of an ineffectual labor during three days, and in a fit of desperation cut open her abdomen and uterus with her husband's razor. After the delivery of a living fœtus, the abdominal wound was sewn up by a neighbor. When the case was reported, several months had elapsed, and both mother and child were then "perfectly well." (*Wiener med. Wochenschrift*, No. 13, 1880, p. 360.)

Pristina is a town of about 15,000 inhabitants, in the extreme north-western portion of Roumelia, and near to the borders of Bosnia (Austro-Hungary) and Servia. The case was first reported as a curious obstetrical operation, in a Belgrade (Servian) journal, on the authority of Dr. V. Gjorgjevic, and copied from it, into the above-named Vienna medical paper. It is to be regretted that the editor of the latter did not take immediate steps to obtain a full record of the case, which would appear from what has been given, to have been both operated upon and dressed, without medical aid. I have made an effort to obtain, if possible, a complete record of this case, which will stand unique, if it should appear that the wound was cured without a hernia, after having been stitched up by a woman of the same class as the self-inflicting operator. The fact of the operation is no doubt reliable, as it is quite in keeping with the other five examples given; in the four of which, that terminated favorably, competent physicians closed up the abdominal wound, and took charge of the patients during their recovery. The fact that recovery followed, although the woman had been three days in labor, would indicate that she must have been free from any pelvic deformity due to bone disease, which always leaves the patient deficient in her power of endurance, as compared with women who have continually enjoyed good health. This difference has been very markedly shown in the large proportion of recoveries which have followed gastro-hysterotomy in cases of impaction of the fœtus in a transverse position in the pelvis, in the United States, amounting to eight out of twelve cases.

CASE V.—Date not given. Operation at Kirilloff, in Novgorod, Russia; reported by Dr. Aisenstadt, who was sent by a Judge of the Court to make an autopsy of the woman, and determine medico-legally the cause of her death.

The subject and operator was a married woman, pregnant for the sixth time, and on this occasion illegitimately, in the absence of her husband; who upon his return was very moderate in his reproaches, and simply asked her, "What will the world say?" When her term of pregnancy was completed, and her husband was away from home, she cut open her abdomen very high

up, with a peasant's axe, and delivered herself of a living male fœtus, weighing $6\frac{1}{2}$ pounds, and measuring $21\frac{1}{2}$ inches (55 etm.) in length. Her daughter hearing her cry, went into her room and found her covered with blood in the middle of her chamber, with a baby in her arms. She explained to the daughter what she had done; recommended the child to her care, and then lay down for a pretty long time on the hearth. Then she made an attempt to walk, but soon fell, from the loss of blood and consequent prostration. She talked with her parents; sent for a priest and confessed what she had done, and died in the evening.

When Dr. Aisenstadt reached the house, he found it guarded by a soldier, and on entering it, saw the dead woman extended upon the floor and covered with blood. The axe with which she incised her abdomen lay near her; and protruding from a wound in her abdomen, were the intestines. The wound was a sharply cut incision of $5\frac{1}{2}$ inches (14 etm.) long, and commenced $\frac{3}{4}$ of an inch (2 etm.) below the ensiform cartilage, gaping at its middle to a width of 2 inches (5 etm.). The wound followed the course of the *linea alba* except at its lower part, where it was slightly deflected. Corresponding to this wound was one in the uterus of $4\frac{1}{2}$ inches (11 etm.) in length. There was no coagulated blood in the uterine cavity, and four fingers could be passed through the cervical canal. The pelvis of the woman was normal, and her body very anæmic. She was no doubt in labor at the time of the operation.

When Dr. Aisenstadt saw the child, it was in its eighth day, and appeared to be perfectly well; the cord had dropped off, and it was being fed upon cow's milk. It died from some unknown cause twenty-four hours later.

(*Vratch*, St. Petersburg, No. 42, p. 750.) (*Repertoire Universel d'Obstétrique et de Gynécologie*, April 25, 1887, p. 150.)

The cause of death in this case, which was the only fatal one of the six, was probably due to the uterus having been incised through some very large vessels in the fundus, which is regarded as a specially dangerous place for opening the organ in gastro-hysterotomy.

CASE VI.—March 28, 1886, near Viterbo, Italy. Reported by Drs. Raneiro Baliva and Adolfo Serpieri, of Viterbo, under date of May 15, 1886.

N. de A., single, aged twenty-three, a peasant woman, of lymphatic temperament, and 4 feet, $7\frac{1}{2}$ inches (140 em.) in height, with a delicate constitution, was in the last month of pregnancy. "As her condition was talked about amongst her neighbors, and provoked the anger of members of her family, and of her masters, she came to the following (unheard of?) determination: At 3 A. M. on the 28th of March, as she relates, she opened her abdomen, with a not very sharp kitchen-knife. The wound was linear, but somewhat jagged, 12 centimetres in length" ($4\frac{1}{2}$ inches), "situated in the middle of the right iliac region, from a little above the level of the umbilicus downward, and from without inward. She penetrated with a somewhat less extensive incision into the uterus, and extracted from it a male fœtus weighing 1 kilo. 900 grm." (under 4 pounds). "This fœtus, before being extracted from the uterus, had received several important wounds in the thorax and abdomen, whereof it died before breathing, as was undoubtedly proved by the results of a necroscopic investigation. The head had been divided from the trunk by a circular incision at the base of the neck and precisely between the penultimate and the last cervical vertebræ. The cord was detached from the placenta and the fœtus. The placenta was perfectly healthy. This operation completed, the patient states that she tightly bound a bandage round her body, so as to bring the edges of the wound together and prevent the protrusion of the intestinal coils; then having dressed herself at 5 A. M., two hours after the operation, she went into Viterbo on foot, a distance of 1 kilometre" (about $\frac{1}{2}$ of a mile), "and visited a married sister, to whom she said nothing of what had happened, but breakfasted with her on bread and coffee, and a cup of broth. She then left the house and walked about the town for some time,

in order, as she states, to show herself and put an end to the current talk about her pregnancy. At 10 o'clock, still on foot, she returned to her home in the country, on reaching which, she was seized with unbearable abdominal pains, followed by violent vomiting, and fainting. She quickly rallied, and the bandage having slipped upward, almost the whole of the small intestine protruded. It was only then (11 o'clock) that the father, mother, and brother became aware of the serious occurrence, and went to Viterbo for medical assistance."

Drs. Baliva and Serpieri arrived at 4 P. M., thirteen hours after the incision, and six after the escape of the intestines. Found the woman in pain, but conscious and tolerably calm, lying dressed on a small bed in a well-ventilated room. They cleansed and replaced the intestines, after having emptied the abdominal cavity of a quantity of sero-sanguineous fluid. The wound was closed with twisted sutures, and a drainage tube placed in its most dependent part. No serious change occurred during the first five days: thermometer was never above 103° F. "There were no signs of uterine disturbance; the peritonitis was only partial; thirst slight; vomiting at night." The catheter was used but once, and this was on the third day; her sufferings were not great. The discharge from the wound was at first abundant and bloody; pus followed the sanguineous discharge, which was thin at first, but became thick by the tenth day, and then gradually decreased in quantity. The dressings were changed four times daily for fifteen days; tube was removed on the tenth day, and sutures on the fourteenth. The deep parts of the wound healed by the first intention for about two-thirds of its extent. On the twenty-sixth day the wound was superficial and 2½ inches long. Cicatrization was complete by the fortieth day. On the forty-eighth day, when the report was made, the woman was well and walking about, but was under the eye of the police for her act of infanticide.

(*Gazetta degli Ospitali*, April 14, 1886, from report of Dr. Salvatore Scoppola, of March 30, 1886, *Riforma Medica*.) (London *Lancet*, May 8, 1886, p. 890.) (*Op. cit.*, May 22, 1886, p. 994, reported directly from Viterbo.)

Owing to the care taken by the editors of the *Lancet*, in writing to the Viterbo physicians in charge of the case, we have a complete and satisfactory record of it. This little woman was certainly a very determined and bold operator, when we consider that she was the subject, as well as the surgeon. Illegitimacy is a potent stimulus in causing women to perform very desperate operations upon themselves. Cases II. and V. are likewise of this character, as have also been many on record, where abortion has been induced by puncturing the uterus *per vaginam* without the instrument entering the cervical canal. As a case in point, I well remember one that occurred a number of years ago in this city. A married lady, belonging to a southern city, finding herself illegitimately impregnated, came to Philadelphia with her paramour, for the purpose of getting an abortion produced. Failing, both by offers of money and begging on her knees, to induce the physicians upon whom she called, to operate upon her (all men of high standing in the profession, and now in their graves), she in several points pierced the uterus through the vagina with a sharpened umbrella-stay prepared at her request by her paramour. This desperate measure induced the coveted abortion, but nearly proved fatal to the woman, who, after a long illness, returned home with an empty uterus.

It will very naturally be asked, Why did so large a proportion of these

women, amounting to 83½ per cent., recover? There was no special care or skill exercised by them in operating: they simply appear to have been perfectly reckless, and regardless of what might be the ultimate effect upon themselves; still but one out of six died, and she did so because she happened to cut too high up. Had she not done this, she would, in all probability, have escaped, as did the rest.

From no record in the world, except that of the United States, can this question be so readily and satisfactorily answered. *These women owed their escape to the fact that their health had never been broken down by bone disease, either in the form of rickets in childhood, or malacosteon in adult life; and were in a physical condition to bear and recover from the shock of the operation.* A rachitic woman may appear to have entirely recovered from the deforming disease of her childhood, and may live to old age; but she has not the power of endurance to be found in working women who have always had fair health. This is shown by the early exhaustion in labor, of rachitic dwarfs, and by the results of gastro-hysterotomy when performed early, as contrasted with those obtained after a long labor. To save a woman with a rachitic pelvis, is the common design of the Cæsarean operation, and to do this in a large proportion of subjects, we must operate early and aseptically, and secure the uterine wound against the possibility of leakage.

If we examine the Cæsarean records of Europe, we find that a very large proportion of the women have either had rickets or malacosteon, and a few have had cancer of the cervix, or a fibroid blocking up the pelvis. In the United States, on the contrary, the causes of the operation have been very varied in character; and in quite a number of cases there has been no pelvic deformity. As I have in a former paper enumerated these, I will only refer to them now in few words. Impaction of the fœtus in different ways in the pelvis, 13; occlusion of the cervix uteri, 4; occlusion of the vagina from non-malignant disease, 4; obstruction of pelvis by a mass of clay in the rectum, 2; ossified skull in hydrocephalus, 1; missed labor, 1, etc. In 28 women, having no pelvic distortion, no malignant disease of the uterus and vagina, no convulsions, and no obstruction from fibroids, the Cæsarean operation proved fatal in but 6, although 21 of the children were dead. Many of these cases were operated on after long labors, varying from 48 hours to 10 days; one-half of them being of this class. The six women lost were in labor from 26 hours to 4 days. It is very evident from these facts, that in our country at least, the Cæsarean operation, where there has been no bone disease in the subject, has had a low measure of fatality, and corresponds with the good results, under the cattle-horn rip, and the self-inflicted section. Of 160 Cæsarean operations in this country, 100 were fatal.

REVIEWS.

A SYSTEM OF GYNECOLOGY BY AMERICAN AUTHORS. Edited by MATTHEW D. MANN, A.M., M.D., Professor of Obstetrics and Gynecology in the Medical Department of the University of Buffalo, N. Y. Volume I. Illustrated with three colored plates, and two hundred and one engravings on wood. 8vo. pp. 789. Philadelphia: Lea Brothers & Co., 1887.

THIS volume which, including the index, contains 789 pages, is by thirteen authors, and is composed of fourteen monographs. The first of these contributions is by Dr. E. W. Jenks, it is entitled "Historical Sketch of American Gynecology," and occupies about fifty pages. This sketch is well written, and is deserving in general of high commendation. Yet in a few points we believe it is justly open to criticism. What the destruction of the Alexandrian library, or the teachings of Hippocrates, or of Paul of Ægina, the learning of Aetius or of Albucasis, and the knowledge of Paré and of Scultetus have to do with the history of American gynecology is not apparent. We think it would have been better if this had been omitted, and the space occupied with a brief statement of the application of electricity in the treatment of extrauterine gestation, though possibly this topic has been reserved for Dr. Engelmann's historical sketch. The six pages devoted to that wonderful man, restless of brain as of body, whose name is imperishably associated with gynecology not only in his native land, but the world over, are none too much, and the writer justly exalts his fame. But some of these sentences seem like echoes from *The Story of My Life*, a book which many of Sims's best friends wish had undergone slight expurgation before being published. The struggles of Dr. Sims to establish a woman's hospital, and the success which crowned them are worthily matters of record, but the opposition made by some prominent members of the New York profession, and the harsh things said of him by them, ought to be alike forgiven and forgotten.

Sims has gone, and also those who opposed his efforts, or at least most of them, have entered the silent unknown, and peradventure these matters of difference and dispute may have been adjudicated by a higher court; we surviving mortals, waiting but a little longer, may well refrain from the revival of buried strifes, or the perpetuation of dead angers.

Those who were present at the Centennial International Congress, can never forget that immediately after the delivery of the address upon the Progress of Medicine, by the late Dr. Austin Flint, the President of the Congress, the late Dr. Gross arose with his accustomed grace and dignity, remarking that the address just heard was notable for the absence of any statement of the author's contributions to medicine, a compliment of the highest character. The author of this history did not follow the illustrious example of the most famous of American

physicians, but repeatedly refers to work he has done; in one instance when this work was no more important than the endorsement of a certain medicine, a medicine too, which one of the highest of American authorities in therapeutics regards of doubtful value, a conclusion to which one is also led when he considers the contradictory results obtained by clinical observers, yet proclamation of his endorsement is one of the important events in the progress of American gynecology!

Dean Swift in his exquisite humor has said that while praise was originally a pension paid by the world, the moderns, finding the trouble and charge too great in collecting it, have lately bought out the fee simple, since which time the right of presentation is wholly in ourselves. One of Shakespeare's characters has declared, that "if a man in this age do not erect his own tomb 'ere he dies, he shall live no longer in monument than the bell rings, and the widow weeps." The wisdom of Swift and of Shakespeare is joyously followed by more than one medical writer whose names we might mention, but whom most of our readers will immediately recognize, writers who promptly label with their names some trifling twist in a probe or petty pointing of a needle, or similar trivial change of another's instrument or illustration.

After the "historical sketch" follow between twenty and thirty pages devoted to the development of the female genitals, the author being Dr. Garrigues. The article is, of course, clearly written, and it is well illustrated. But why the writer should persist so generally in speaking of "the Müllerian ducts," instead of simply saying Müller's ducts, we cannot tell. Müllerian is, of course, correct, but the word is almost as destitute of euphony as is Brobdingnagian, and is unnecessary, since the idea can be expressed in a simpler way.

One might naturally think that the chapter upon "Malformations of the Female Genitals," also by Dr. Garrigues, would immediately follow, but there intervenes a chapter of more than one hundred and thirty pages by Dr. Henry C. Coe, upon the "Anatomy of the Female Pelvic Organs." Dr. Coe's presentation of the subject is excellent, and we have only a few criticisms to offer. The author gives *pudenda* as a synonym for vulva, meaning thereby the external organs of generation in the female; but the proper designation is *pudendum muliebre*, certainly not *pudenda*; if *pudenda* was the right word, then it is obviously wrong to speak of *labia pudendi*, but we ought to say *labia pudendorum*. Again, *vulva* is claimed to be derived from *valvula*. But this is doubtful; it seems more probable that its derivation is from *volvo*,¹ to cover, or to enclose, while some have claimed that it is from *volendo*, and the familiar passage from Solomon used to justify this origin.

The author gives as one of the Latin synonymes for the *vagina sinus muliebris*. But if Schurigius can be accepted as competent authority, this is a mistake, for he says, *Ad muliebre Pudendum, quod etiam Natura seu sinus muliebris vocatur, referuntur omnes partes, etc.* The same author gives as one of the synonymes for the *vagina, sinus uteri*.

Dr. Coe remarks: "The blueness of the mucous membrane of the vagina during early pregnancy is sufficiently familiar, yet ovarian and uterine tumors or prolapsus may cause the same appearance." We confess we have never seen the deep hue of the vaginal mucous membrane

¹ Certainly this derivation is adopted by one of the most distinguished authorities in the United States, Professor March, of Lafayette College, and though *valvula* is from the same root, yet it means a very different thing from that which was understood by *volva* or *vulva*.

of the vagina resembling that of pregnancy, in uterine or in ovarian tumors, but we have in prolapse of the vagina.

The author is not willing to accept the statement of Hart, that the nymphæ are two folds of mucous membrane, but are skin, thin and fine, and suggests the adjective muco-cutaneous. This designation had been previously given by Allen. We think, too, that Dr. Coe is mistaken in asserting that canal vulvaire is in French a synonyme for vestibule; certainly he can find no authority in some of the recent French works upon obstetrics for this statement, that of Tarnier, for example.

Dr. Coe states on page 126, "The surgeon finds a convenient access to the base of the bladder through the vagina, cystotomy and lithotomy being simple operations in the female; the hemorrhage is insignificant," etc. Let not any inexperienced operator fully accept this statement as to the insignificance of hemorrhage following an incision of the vesico-vaginal wall, for we know that the bleeding may, in rare cases, be quite serious; a grave loss of blood has in some instances resulted from an operation for vesico-vaginal fistula, and in at least one instance, a case of the late Dr. Peaslee's, death followed: now in this operation the mucous membrane of the bladder is intact, while it is divided in the vaginal operation for lithotomy, and thereby the possibility of bleeding is increased.

But we must pass on, merely concluding this notice of Dr. Coe's work, by saying that it is excellent, and presents many very useful illustrations.

Malformations of the female genitals are very ably presented by Dr. Garrigues. We are sure no one anxious to study this subject can find a clearer and in all respects better exposition in the English language than that here given; the article abounds in excellent illustrations.

Dr. Grandin writes a chapter upon gynecological diagnosis. On page 235 he states, "we need not be too chary in our speech—indeed, must sometimes, to fulfil our whole duty, even ask questions which touch upon the most delicate possible ground. Such are—the frequency of intercourse, the sensation evoked, the completeness or incompleteness of the act, the retention or the non-retention of the semen." Of course, these questions are directed to married women, and it is claimed that the answers will frequently give us a clew to the cause of menstrual derangement, or the possible cause of sterility. Now it can only be in very rare cases that such questions are at all proper; some women refined, sensitive, and modest would resent these inquiries, and never return to the physician making them. Marion Sims by no means made frequent errors in diagnosis, yet he, before a large body of professional men, declared that he had never asked a patient as to pleasure in sexual intercourse. It is only after a careful examination, objective as well as subjective, the latter not trenching upon such delicate ground, that in some instances there may be just ground for asking some of these questions.

We are sorry to add to this criticism the statement that Figs. 111 and 112 ought to be banished from the book, for they fulfil no necessary or useful purpose, and are indecent. Some years ago, conversing with a gentleman in charge of an important medical library, he took a volume from the writer's table, opened it at a similar picture, and said, "Here is a book that shall never be in — Library while under my

charge. That illustration is positively indecent, and excludes the book."

Illustration No. 119 is taken from Hegar and Kaltenbach, having been copied in another work, with an unnecessary line added, and the author of that work, as well as Hegar and Kaltenbach credited with it. Really, this seems like carrying recognition of rights in a figure to an utter absurdity. Smith publishes an article, and in it quotes a passage from Jones, but introduces an unnecessary comma; henceforth that passage is to be recognized as the property of Smith and Jones. With the exceptions mentioned, the article is worthy of great commendation.

Dr. E. C. Dudley, of Chicago, is the author of an article entitled, "General Consideration of Gynecological Surgery." Dr. Dudley devotes the first five pages of his carefully prepared paper to the subject of anti-sepsis; the rules that he gives are minute, but no more so than the subject demands. Then follow opium, quinine, and ice, for the prevention of inflammation after operations; when to operate, preparatory treatment, and other topics considered as their importance requires. We are somewhat astonished that Dr. Dudley, in referring to sutures, makes no mention of silkworm-gut, which many are using in most plastic operations in preference to silk, or to silver.

Fig. 141 shows a comparatively useless instrument, Emmet's double tenaculum, which the practitioner need not buy; indeed, there are a great many needless instruments shown by both Dr. Grandin and by Dr. Dudley, and one, after seeing them all, feels very much like adopting the language of an ancient philosopher who, visiting a fair, exclaimed, "How many things there are in this world we do not require!" Fig. 147 shows a uterine tenaculum, which, unfortunately, has no individual's name given; Dr. Grandin has already given representations of Sims's and of Emmet's tenaculum which present trifling differences, and we suppose if exact justice were rendered to the unnamed inventor, this third tenaculum ought to be called his modification of Emmet's modification of Sims's tenaculum.

We find so much to commend in the simplicity and completeness of Dr. Dudley's directions, that we may venture to protest against a part of the directions for preparing a vaginal tampon to be used in case of serious uterine hemorrhage. "The material of the tampon should be cotton made into pledgets two inches square, and saturated with a solution of alum and squeezed dry." It would be vastly better to have the tampon made of pieces of cotton dipped in a solution of carbolic acid. Why should the vaginal walls be subjected to the irritation of alum when there is no bleeding from them? The essential object sought by a tampon under these circumstances, is to arrest hemorrhage by pressure, not by the action of an astringent.

"General Therapeutics" is discussed in an admirable paper by Dr. Skene—our only regret is that the article is not longer.

"Electricity in Gynecology" is the subject of a paper by Dr. Rockwell, one of the highest authorities. We miss those details and rules and illustrations of apparatus and instruments which would be so useful, so needful, indeed, for the general practitioner. Among the most valuable parts of the paper are those derived from Apostoli, Tripier, and Engelmann. But some of us have been led to question whether the first of these authorities was not more of a theorist than a practitioner, and, therefore, hesitate to follow his teaching.

In referring to the electrolytic treatment of fibroid tumors, the author fails to warn us of the dangers that sometimes occur from this method, and to state the fatal results that may happen.

"Menstruation and its Disorders" are considered in some thirty pages by Dr. Wylie. Referring to the first menstruation, the author states that "It may be hastened by an indoor and indolent life, and on this account comes earlier in those brought up in cities." But indolence and indoor life are not the chief factors in determining early menstruation in a certain class of city girls, but rather the alimentation, the mode of education, and the various unnatural stimulants to the nervous system to which these girls are subjected. Besides, it should be remembered that there is a much larger class of city girls in whom puberty may be delayed because of their strength being taxed beyond their years, and because they are poorly clad, poorly housed, and have not sufficient or suitable food, while there are still others in whom menstruation occurs early in consequence, probably, of association with men and boys in factories.

In regard to the quantity of the menstrual discharge, the late Dr. Sims taught that three or four napkins would be required in twenty-four hours. But, according to Dr. Wylie, "If less than five or six ordinary napkins or more than eighteen are pretty well saturated, then the amount may be considered abnormal."

"Until Bischoff advanced and Pflüger elaborated and developed the theory of ovulation and ovarian irritation as the cause of menstruation, etc." (Wylie.) Not a word is said of the investigations of Gendrin and of Negrier; Pouchet's *Theorie positive de la fécondation*, published some months before Bischoff's contribution, and Raciborski's at the same time are not mentioned. Möricke's experiments disproving fatty degeneration of the superficial layers of the mucous membrane of the uterus during menstruation are referred to, but the names of Ruge, of Winckel, and of de Sinéty, who have made similar investigations with a like result, are not mentioned. Does not the author, too, make too broad a statement when he asserts that "menstruation has been found to continue in many cases with regularity after complete removal of the ovaries"? When post-mortem examinations prove the latter fact, and also entire absence of supernumerary ovaries, it will be time enough to abandon the theory of the dependence of the menstrual function upon ovulation; certainly it has been conclusively proved that in congenital absence, or in failure of development of the ovaries, menstruation does not occur.

Dr. Wylie suggests that "menstruation may be intended to take the place of the free exercise of the functions of these organs"—i. e., the generative organs, "and thus compensate for the restraint and disuse so much and so necessarily practised by civilized races." The suggestion is neither new nor true; from Roussel and Auber down to King it has occasionally risen to the surface as idle foam upon the waters, and as idle foam disappeared;¹ it needs no answer.

The definition of amenorrhœa is a poor one—"suppression or cessation of the menses between the age of puberty and the menopause;" that of Bernutz is very much better—"absence of the menstrual flow, and by extension, its diminution".

¹ It is somewhat remarkable that when the author apparently says menstruation is independent of ovulation, and presents the hypothesis referred to above, to find the second statement in the following sentence on p. 413: "Since the old idea of the noxious influence of retained menstrual blood has been given up and the ovulation theory accepted, emmenagogues have not been very much used."

In referring to the treatment of amenorrhœa, the author states that potassium permanganate, binoxide of manganese, oil of savine, mustard, etc., are of very doubtful usefulness. Alas, for the fallacies of professional experience! Are the results obtained by many, among whom may be especially mentioned Dr. Fordyce Barker, from the use of the first of the agents mentioned, to be cast aside as deceptions?

The author, in considering dysmenorrhœa, remarks, "Years ago I abandoned the prevailing belief that antelexion frequently causes dysmenorrhœa directly by mechanically closing the canal." But would not this have been strengthened by adding the statements of Seanzoni and of Schultze, who upheld a similar opinion long before this utterance? Both these authorities have, by giving the sound a suitable curve, introduced the instrument into the pathologically antelexed uterus when the subject was suffering atrocious dysmenorrhœal pains, and not a drop of blood followed the withdrawal of the sound, the flow not coming on in some cases until hours, or even days afterward.

Dr. Wylie's creed as to the cause of dysmenorrhœa is a brief one: "Dysmenorrhœa is chiefly due to a hyperæsthetic condition of the membrane lining the body of the uterus, associated with a contracted or inelastic, or irritable state of the tissues at or about the os internum." This theory gives no place to para- and perimetritis, and to metritis as causes; it ignores the fact especially presented by Schultze that by the cure of these inflammations the dysmenorrhœa is cured.

But Dr. Wylie is better in his therapeutics than he is in his creed, for he details a plan of constitutional treatment, and states that it will often give relief in a few months, and if persevered in will, in simple cases, effect a cure without any local treatment. It is only after failing with these means, injections of hot water being added, and no benefit, that he resorts to local treatment. This local treatment consists in part of the application of pledgets of cotton saturated with a mixture of glycerine and boro-glyceride; he states that the uterus is rendered movable by these means, but this reads very much as if they had contributed to the removal of inflammation, and of inflammatory products. Dilatation follows, and for this purpose he employs his modification of Sims's dilator, an instrument whose "blades remain parallel under two hundred pounds pressure." An instrument of such strength may be necessary, but if one with a force approximating this were to attempt to draw the fœtal head through a partially dilated os, the poor woman, if she survived, would surely have a lacerated cervix, demanding an operation; Swammerdam said that the uterus was the miracle of nature, and he certainly would emphasize his statement could he return and find what this organ will safely endure from dilators with blades. The treatment by dilatation is repeated, in some cases three times, but usually only twice during the menstrual interval: "If the dilatation can be carried to the point where the blades are four lines apart at the os externum, the dysmenorrhœa is relieved in the majority of cases where there is no active endometritis or endocervicitis, and in favorable cases it is the beginning of a permanent cure."

He states that in a certain number of cases of married women this method gives only temporary relief, and then resort must be had to divulsion or a modification of Sims's operation, which is a combination of divulsion and incision, with the use of a hard-rubber intrauterine drainage tube. We shall not follow the author into the details of his method

of operating, but we wish to say a word as to this divulsion advocated by so many distinguished practitioners. Does it always cure? We have met with one patient who was well after the operation for a year, and then as great a sufferer as before; the operation was repeated, and the restoration again lasted about twelve months. Is it possible permanent injury may be done by the operation? In one case, a virgin, there was thus caused a bilateral laceration of the cervix, and also a laceration of the posterior lip, each extending nearly, if not quite, to the vaginal junction; it may be added that this patient, some two years after the operation, still suffered from dysmenorrhœa, though the suffering had been materially lessened.

The author refers disparagingly to dilatation by sounds. But would it not have been well, nay, just to his readers, to state the method of using sounds, and especially the results which Matthews Duncan has with them? Dr. Wylie's exposition of his own practice is admirable, but in an article for a great encyclopædia we look for something more than the knowledge, the opinions, and the methods of the writer, and the failure to present the opinions and practice of others is the chief fault of an otherwise well prepared article.

Dr. A. Reeves Jackson contributes the chapter upon "Sterility;" it is an able presentation of the subject. But there are some theoretical views presented in it, which we hesitate to accept, such as aspiration of the uterus, thereby drawing the seminal fluid into its cavity, as a common phenomenon of coition, or necessary for impregnation.

Dr. Mann follows with a paper upon "Diseases of the Vulva." This, too, is a very valuable article. But we must demur to the following practice advised in certain cases of deep penetrating wound of the vagina, if the hemorrhage be severe, received in parturition, viz., the introduction of a tampon of cotton dipped in alum water, and sprinkled with iodoform, "in which case it may be safely left in place for four or five days, without fear of decomposition and subsequent sepsis." Of course, the cotton will not decompose, but what is to become of the lochial discharge during these four or five days while the vagina "is securely tamponed?" In referring to diphtheria of the vulva, Dr. Mann states that in certain epidemics of puerperal fever it makes up a considerable part of the local lesions. But is the deposit found in such cases diphtheritic or diphtheroid? Certainly if we accept the teaching of Spiegelberg, of Siredey, and of Mayer, it is diphtheroid. In speaking of inversion of the hair of the labia, Dr. Mann refers to two cases described by the late Dr. Meigs, in each of which there were hairs growing upon the inner surfaces of the labia. But nearly two hundred years ago Christ. Franc. Paullini narrated a case of this anomaly, as observed by Ambrosius Rhodius in a beautiful Lapland girl. The cause of this peculiar growth suggested by the narrator, was thus given in Latin, and in Latin let it be repeated by the authority of Dr. Samuel Johnson, who asserted that whatever was intended to be universal and permanent should be in this language: *Causam conjecit in phantasiam matris, quæ forte crebrius contrectarat membrum mariti, pilis valde luxurians, and dormiens digitum intruserat in genitalia sua.*

In the account of vaginismus superior, Dr. Mann makes no reference to the cases reported by Budin, but he does mention the remarkable one of Dr. E. Y. Davis, which was received with creditable incredulity by some foreign journals. A very good account of coccygodynia and

its treatment is given. We must object, however, to the author's direction as to employing a drainage tube, for this is, in some cases at least, unnecessary. In regard to the etiology of the affection, the author repeats the stereotyped statement that it may be caused by horseback riding, which, if true, ought to be proved by the frequency of the disease among cavalymen. He also states that Simpson was first to propose separation of all the tendinous attachments of the coccyx for the cure of coccygodynia, but this was first proposed by Krukenberg, of Halle: at least his name ought to have been mentioned in connection with the operation.

Dr. C. D. Palmer contributes nearly one hundred pages upon the inflammatory affections of the uterus. The variety of local applications, and the freedom with which they are advised will delight those who are at the opposite pole to Emmet, in regard to local applications to the endometrium, but thoughtful men will regret that so wise and careful a practitioner as Dr. Palmer is should give his endorsement to the intrauterine use of nitric acid: to our mind, such treatment is irrational, and if not immediately dangerous or even if temporarily attended with good, is likely to do permanent evil. There is surely a day coming when such violent remedies as this is will not be employed in uterine therapeutics unless in the treatment of malignant disease.

Dr. Palmer seems very much under the dominion of Courty when he speaks of fluxion and congestion, but really it is difficult to appreciate the nice distinction made between these conditions.

Dr. Reamy follows with nearly forty pages in a paper upon subinvolution of the uterus and vagina. This paper, of course, is an excellent one from the author's standpoint, but some will question whether woman has not enough maladies without adding to the list subinvolution of the vagina, or if this malady be admitted, why not increase the list and so have subinvolution of the heart, of the thyroid gland, of the kidneys, liver, etc.? Still others, adopting the view of French authorities, will deny the existence of subinvolution, believing that the condition so described is simply chronic parenchymatous metritis.

Periuterine inflammation by Dr. Maury, and pelvic hæmatocle and hæmatoma, by Dr. Van der Warker, conclude the text of the volume. We have already considered some of the previous papers of the volume so fully, that we can scarcely more than find space to say that each of these is a contribution worthy the author. Dr. Maury had an exceedingly difficult subject to treat, and at the same time one of the most important in the whole volume. A pressing question of the hour is, When is pelvic peritonitis, a mere consequence usually of disease of tubes or ovaries, to be treated medically, and when is extirpation of the uterine appendages necessary? The latter question is not to be determined by the experience of one individual, no matter how great that is, but by that of numerous members of the profession who shall wisely observe and carefully record not only immediate, but remote, results from the removal of the uterine appendages.

We regret the failure to mention among the means of treatment of pelvic peritonitis the application of leeches to the cervix, as especially taught by Bernutz, for certainly few remedies are followed by such prompt and satisfactory results in this intractable, or at least tedious disorder, if properly used.

The general impression received from an examination of this volume

is most favorable, especially as a work admirably adapted to the general practitioner, a work, once having obtained, he will be quite unwilling to part with. The several articles differ in ability manifested and in value. Some are of the highest merit, while others cannot be so classed; but there is not an inferior paper in the entire list. T. P.

TREATISE ON HUMAN PHYSIOLOGY, FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By HENRY C. CHAPMAN, M.D., Professor of Institutes of Medicine, etc., in Jefferson Medical College, Philadelphia. 8vo. pp. 945. Philadelphia: Lea Brothers & Co., 1887.

CONSIDERING that we had already in the English language the works of Huxley, Kirkes, Dalton, McKendrick, Yeo, Foster, and others, not to mention the comprehensive work of Landois, now translated into English by Stirling; recognizing that all of these works had been extensively used and much appreciated, we turned with eagerness to our author's preface in order to ascertain why another compilation had been introduced to intensify the struggle for existence, already sufficiently keen, among the numerous aspirants for public favor in the form of textbooks for the student of physiology.

We find that Dr. Chapman thinks "there is a want felt by students and practitioners of medicine for a systematic work, representing the existing state of physiology and its methods of investigation, and based upon comparative and pathological anatomy, clinical medicine, physics, and chemistry, as well as upon experimental research." It is true, the first-mentioned of the above works is written by one of the greatest exponents of science that has ever lived; that "Foster's Physiology" is a monumental, classical work; and that Landois has furnished, on precisely the basis Prof. Chapman proposes, an almost inexhaustible reservoir of facts and opinions, but our author, notwithstanding, still believes there is a "want felt by students," etc. Such students would surely prove an interesting study for the psychologist. We are further told that this work embodies essentially the author's teaching. Now we venture to affirm that if Prof. Chapman will publish to the world the secret by which he is enabled to teach to the overburthened medical student, in the time at his disposal for the study of physiology, the contents of this vast volume of more than 900 pages, he will confer a benefit of almost inconceivable magnitude, not only on his own profession, but on mankind generally.

It is, however, possible that we have misunderstood the author, in which case our criticism would require modification.

We thoroughly agree with the author as to the sort of a *basis* to be given to the physiology the medical student should have; the day of dogmatic teaching is or ought to be past; the student is entitled to have laid before him the grounds for the faith he is asked to adopt; but the *extent* to which the teachings of pathology, clinical medicine, etc., can be profitably employed must vary greatly with the circumstances of the case, and should be left largely to the judgment of the individual teacher.

After learning from the preface the basis for physiological teaching prepared by the author, we are surprised that he should follow the old

but unjustifiable course of calling his work a treatise on "human physiology." A work setting forth in some fulness the actual amount of genuine human physiology we possess, would be an exceedingly valuable and much-needed addition to our literature. We consider such results as those obtained by the study of St. Martin genuine human physiology, and of the highest value. But of such there is really very little; the rest of our physiology is a curious mixture of inferences of varying scientific value based on equally variable sorts of facts. It is highly desirable that this should be clearly recognized, especially by all teachers and writers.

It must, indeed, be conceded that in the above matter our author has only done as most others before him; but we were led to look for something more consistent from the view he entertains of the foundations on which a course of physiology should be built.

We are glad to notice some use made of comparative anatomy, but it is unfortunate that such material was not employed as is readily accessible to every student. The opportunity to examine the viscera of a giraffe or a capybara must come as a rare luxury to a very limited number of men.

It is desirable that students should be familiarized, to some extent, with the methods and apparatus of modern physiological investigation; but the subject is greatly overdone in this book. Medical students have not the time to examine all the forms of respiratory apparatus described and figured in this work. We also think it unwise to introduce the subject of physics, pure and simple, in a physiological text-book, especially as there are, at least, two excellent works on medical physics in English; one of these is written expressly for the medical student; and when we imagine the latter coming to such an array of formulæ as that on page 587, and elsewhere, we can almost hear him exclaim: "This is the last straw!" Now, if there is one thing more than another that the experience of years of teaching is impressing on us, it is the desirability of presenting, again and again, *the main principles of the subject from many different points of view*, and of illustrating them by *simple* experiments which the student can repeat for himself, even at his own home. *Non multa sed multum* has become our motto.

Much in Prof. Chapman's book should be consigned to the hand-book for the laboratory. The book is not overburdened with histology, we are glad to notice. To have introduced the question of nutrition or metabolism so early in the book, considering its difficulty and obscurity, was a capital error.

The work is fairly up to date, but we are, at times, greatly disappointed; thus, the now almost obsolete views on the nervous mechanism of the heart are presented, and not a word in regard to recent advances, though mostly made by English and American investigators. But the great question with us, after all, is this: Is this work really required? In the execution of this task has energy been wisely expended? Unless additional text-books are really new in plan, matter, or some other respect, we are forced to doubt their claims to recognition. Had certain other works not existed, we should have welcomed this one as a desirable addition. As it is, it may tend to prevent authors reaping the fruits of their labors, as they had a right to expect.

T. W. M.

HANDBOOK OF GYNECOLOGICAL OPERATIONS. By ALBAN H. G. DORAN, F.R.C.S., Surgeon to Out-patients, Samaritan Free Hospital for Women and Children, London. With illustrations. Pp. xii. 485. Philadelphia: P. Blakiston, Son & Co., 1887.

THE reader may open this attractive volume with some hesitation, fearing lest his previous high opinion of the author, derived from a knowledge of his good work on pathology, may require qualification. It is certainly a bold undertaking on Mr. Doran's part to publish a monograph on surgery, since he must necessarily offer mostly the results of observation rather than of personal experience; still, the purpose of the book is not to tell how many operations he has himself performed, but to teach others how to do them.

At the outset, we are struck with the heavy "padding" of anatomy and pathology in the first six chapters; in fact, the reader does not reach the portion devoted to operations until he has worked his way through nearly one-half of this "manual devoted to true surgery"—certainly a disproportionate amount of space for the introductory chapters. It might have been assumed that much of this was familiar to the class of readers who would be most likely to consult such a work for practical information on the *technique* of gynecological operations.

One hundred pages (Chapters VII. to X. inclusive) are devoted to abdominal section, and form the most valuable and instructive portion of the book. The subject is evidently a favorite one with the writer, and it has certainly never been treated better in any previous monograph. The description of the management of complications is especially valuable to the inexperienced, particularly those which occur in the after-treatment, a point touched upon very lightly in most accounts of ovariectomy. The chapter on oöphorectomy is not so satisfactory in comparison, considering the fact that this operation is relatively more common at the present day than ovariectomy. The complications and dangers (especially the matter of adhesions) deserve more extended mention. Hemorrhage, primary and secondary, in connection with this operation, is sufficiently important to claim a separate paragraph.

Chapter XI., on supravaginal hysterectomy and operations on fibroid tumors, is excellent both in matter and style. In the following chapter the operation of vaginal hysterectomy for cancer is described rather briefly. The writer makes no mention of the commendable plan of securing the uterine arteries as a preliminary step in the operation, and no reference is made to complications during and after the operation.

American readers will hardly be pleased to find the fag-end of this chapter allotted to trachelorrhaphy, and still less to read a description of the operation with the patient represented as placed on the back, a short tubular speculum being introduced. The introduction of Fig. 127, and the direction to denude "a strip of mucous membrane with a little of the subjacent tissue" is misleading, and might prevent the inexperienced operator from grasping the essential point in this step of the operation—to take out a generous wedge, including the entire depth of the tissue—and not simply to pare the mucous surfaces. But, as the author is evidently on strange ground here, it is unreasonable to expect the mention of all those little details with which we are so familiar. We are afraid that his description of the operation would hardly afford much assistance to a tyro.

Curiously enough the two succeeding chapters discuss the operative treatment of extrauterine pregnancy and Cæsarean section, and Porro's operation, subjects which belong properly under abdominal section. Their introduction here is scarcely appropriate, but the operations are well described. Laparo-elytrotony receives scanty mention.

The remainder of the book is devoted to operations on the urinary and lower genital tracts. The chapter on perineorrhaphy is quite satisfactory. We can agree with Mr. Doran in his faint praise of anterior kolporrhaphy. Operations for the cure of urinary fistulæ are briefly, but clearly, described. The space devoted to ectopia vesicæ seems disproportionately great, considering the fact that the operation for its cure belongs more properly to general surgery. The absence of any allusion to the formation of an artificial vesical or urethral fistula, not an uncommon operation with us, is noticeable. The author appears to have had little or no experience with plastic work on the urethral tract. Prolapse of the urethral mucous membrane, also, receives no mention. The concluding chapter deals principally with operations for the cure of atresia and deficiency of the vagina and urethral caruncle.

In such a brief and imperfect review of this work, it is impossible to do justice to its many excellent features. Its faults are few, and may be briefly characterized as follows: The subject matter is not arranged in such a manner as to insure an easy sequence; less important topics receive a disproportionate amount of space, too many pages being devoted to anatomy and pathology, considering the fact that the work is supposed to deal with surgical *technique*. In consequence, the descriptions of minor operations are often wanting in details. Condensation would add decidedly to the value of the book. As a minor blemish, may be mentioned the pedantic tone of some of the foot-notes; however correct the writer may be, he should restrain his *penchant* for discussions on philology.

But, to offset our criticisms, we need only refer to the excellence of the chapters on abdominal surgery, to the clear and forcible style, the lucid descriptions of operations, and the many new illustrations, to convince the reader that the work is well worthy of his perusal. Mr. Doran would deserve praise, if for no other reason than because he has judiciously collected and arranged descriptions of gynecological operations that have hitherto been scattered throughout the literature.

H. C. C.

TRATTATO DELLA DIFTERIA PER IL CAV. DOTT. VINCENZO COZZOLINO.

Prof. pareg. della R. Università di Napoli, Direttore della clinica pareg. per l'orecchio, naso e gola nell'ospedale clinico, etc., etc. 1 volume. Statistica, Biologia del virus difteritico, Batteriologia, Igiene, Storia epidemiologica dell'epidemia difteritica di Reggio-Calabria nel 1884. Napoli, 1887.

A TREATISE ON DIPHTHERIA. By DR. VINCENZO COZZOLINO.

THE scope of this work is most comprehensive, and its tone, at least of this, the first volume, may be inferred from this sentence in the preface: "Hygiene is the first of the social sciences and its *mot-d'ordre* is preven-

tion." The importance of public and private hygiene with reference to this fatal disease, is tenaciously insisted on from beginning to end, and is emphasized by statistics from Paris, St. Petersburg, and Naples, which show that, during the last ten years, the mortality from diphtheria has been steadily on the increase. On page 15 is given a table of the mortality from diphtheria in twelve of the principal cities of Europe, for a space of five years, and the author incidentally mentions the great superiority of quinquennial over annual statistics, quoting, with reference to the latter, the saying of Bertillon, that to compare the mortality of one year with another is like appealing to chance for the settlement of a scientific question. According to the table referred to, the mortality from diphtheria is greatest in Berlin, being in the proportion of 8.51 per 1000 inhabitants. Statisticians will find much to interest them in this work, in which are considered, not only the relations of diphtheria in general to the season of the year, but also the influence of the latter upon the seat of its primary manifestation, whether in the pharynx, larynx, or trachea. The influences of age, sex, and social condition, also receive due attention.

In the section upon the origin of the diphtheritic virus, considerable space is given to the important subject of diphtheria among the lower animals, and numerous facts are given to show that epidemics in man are often preceded by the same disease in domestic fowls. This subject was first studied in France, by Nieati, of Marseilles, then in Italy, by Cozzolino. More recently, it has been investigated in England, by Dr. George Turner, under the auspices of the Local Government Board, and the report of his work has inspired an interesting editorial in the London *Lancet* of August 13, 1887, in the course of which the writer remarks that the observations of Dr. Turner may afford a "clue to the origin of those isolated attacks which cannot be attributed either to personal communication or to other ordinarily assigned cause."

In the interesting section on the bacteriology of diphtheria, the author claims that although Laboulbène, in 1861, described vegetations in the form of spores as forming part of the constituents of diphtheritic membrane, Tigri, of Siena, in 1867, first insisted upon their etiological importance. His description of the parasites is almost identical with that given at the present day by Klebs and Loeffler. In the same section (p. 173) the memorable researches of Wood and Formad are quoted, and a brief but accurate summary of their work is given.

The important subject of disinfection of the sick room and those adjoining it, is treated in interesting detail, the various methods advised being thorough applications of the rule to *sterilize* the primary focus. In case of death it is recommended that the cadaver be immediately enveloped with a cloth saturated with a five to ten per cent. solution of chloride of zinc, and that the interment should take place as near the place of death as possible. The grave should be deeper than usual, and the coffin surrounded with a layer of quicklime. These precautions are based upon the important fact discovered by Pasteur and confirmed by Darwin, Feltz, and Bollinger, that the virus of anthrax may permeate the soil by capillarity or be conveyed to the surface by earth worms. Such facts may explain the infection, first of fowls, and, subsequently, of man.

The various strata, so to speak, of which this excellent work is composed, are permeated by a vein of purest patriotism. For example, the

section in which the claims of Tigri are advanced, is headed "Gloria Italiana," and on page 241 Moleschott is quoted as having said that without Galileo there would have been no Newton; without Pacini, no Koch. "*Senza Galileo, non sarebbe stato Newton; senza Pacini, non sarebbe stato il Koch.*"

The book is admirably printed and the only erratum discovered is on page 268, where Quersant is evidently intended for Guersant.

F. P. H.

ILLUSTRATIONS OF UNCONSCIOUS MEMORY IN DISEASE, INCLUDING A THEORY OF ALTERATIVES. By CHARLES CREIGHTON, M.D. Pp. 212. New York: J. H. Vail & Co.

WE owe an apology to the author of this work for the delay in the appearance of this notice. We intended a review which should in some sense be adequate; but circumstances proved stronger than our good intentions and hence, we merely outline a notice that had otherwise been a real review.

It is not a large volume; but it contains more matter for reflection than many volumes. The subject is an abstruse one, although here handled in a clear manner, by one habituated to "clear thinking and straight seeing."

By "unconscious memory" our author means ideas and conceptions stored up in the mind, but which can be revealed to the consciousness, and thus become present and realized. It follows thus that all of our mental acquisitions, except the idea present in the mind, are behind consciousness. As applied to morbid states, it may be said of a neurotic individual that his nerve tissues are endowed with a retentive memory, and an acquired diathesis is like a habit that overmasters the will.

Our author, in part, derives his philosophy from Dr. Hering, the physiologist of Prague. He does not make memory a property apart from the organic substratum, and for Creighton, as for Hering, memory is a property of the brain matter. Germination is an unconscious memory, becoming objective in the descendants. Although the simplest of organic structures, the seed elements contain the memory of peculiarities of all preceding types. Our author, accepting Hering's view, holds that memory is a general function of organized matter. This admitted, it follows that chronic diseases are habits of the tissues. In a similar manner are continued maladies that have no necessary connection with the nervous system, such as chronic catarrhs. Very striking examples of the persistent unconscious memory that constitutes a habit are many cutaneous maladies.

Long persistent errors perpetuated by unconscious memory become at last a diathesis, such as gout, leprosy, etc. Our author finally shows, by his demonstration of the nature of an alterant medicine, how our therapeutical notions may be rendered more exact by a study of the relation of unconscious memory to morbid process.

Those who desire to reach a higher plane of thought and action, and who are striving toward exactness in their therapeutical methods should read this little volume.

R. B.

PHYSIOLOGIE DE LA VOIX ET DU CHANT. HYGIÈNE DU CHANTEUR. Par A. GOUGUENHEIM et M. LERMOYEZ. 12mo. pp. 208. Paris.

PHYSIOLOGY OF THE VOICE AND OF SINGING. HYGIENE OF THE SINGER. By A. GOUGUENHEIM and M. LERMOYEZ.

THIS is a condensed systematic treatise on the physiology of voice and of song. It commences by presenting a parallelism between the respiratory functions of the lungs and the phonatory function of the larynx; the larynx forming the tones and the lungs regulating their intensity. Then the various theories of voice production are passed in review. The vocal function of the glottis is discussed in a special chapter. Pitch, it is claimed, is under the sole domain of the glottis; the glottis is the instrumentist, the cavities of reinforcement and resonance are the instrument. Two essential conditions control the production of voice: sufficient tension of the vocal bands, and sufficient intensity of the expiratory current. When the pressure of the latter equals that of a column of water sixteen centimetres high, the lips of the glottis vibrate if in proper condition, and ordinary voice results. It is contended that muscle, fibrous tissue, and mucous membrane all vibrate in the production of voice; an opinion which cannot be sustained. Erroneous, too, is the statement that the interarytenoidal portion of the glottis never remains open in the production of ordinary vocal tones. One can hardly have examined numerous larynges without having met several examples. Indeed, Gouguenheim has called attention to the fact in another connection.¹ Nor is aphonia the necessary result of this disposition of the lips of the glottis when pathological; dysphonia only being the ordinary result. The long-demonstrated fact that the cricoid is pulled up to the thyroid, and not the thyroid down to the cricoid, is attributed to so late a writer as Illingworth (1879). The important rôle played by the internal portion of the thyroarytenoid muscle seems fully appreciated; and the rarity of exceptionally good voices is, as it appears to us, quite plausibly explained by anatomical lack of certain digital insertions of the muscles along the phonatory portions of the vocal bands.

The apparatus of resonance, both for speech and for song, especially in regard to the ventricles, pharynx, mouth, and nasal passages, are ably discussed. The various theories of the production of the registers, and especially of the falsetto, are set forth, acceptance being given to that of Vacher, a theory, however, long before enunciated by Madame Sciler, of Philadelphia, namely: that the vocal bands vibrate in their entire length in the production of chest tones, and that they are pressed in contact posteriorly in the production of head tones. The scientific physical basis of sounds in general, and vocal sounds in particular, as elucidated by the elaborate researches of Helmholtz, are well presented and used in argumentation.

Hygiene of the voice forms the subject of the concluding chapter. The various types of respiration are described, rules given for vocal gymnastic exercises, their duration, the age at which singing should be

¹ Des Névroses du Larynx, Paris, 1883, p. 16.

begun, the choice of residence for singers, the selection of clothing, the alimentary regimen, and the physical exercises desirable. Finally, the various causes of injury are summarized and discussed, namely: fatigue; debility from change in some important function, especially digestion; colds; general maladies, such as rheumatism, herpetic and strumous disease of the nasal, laryngeal, tracheal, and bronchial mucous membrane; other and graver general diseases, such as syphilis and tuberculosis; and the more or less accentuated perturbations of the nervous system caused by anæmia, chlorosis, and hysteria. J. S. C.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S. EDITED BY T. PICKERING PICK, Surgeon to, and Lecturer on Surgery at St. George's Hospital. A NEW AMERICAN, FROM THE ELEVENTH ENGLISH EDITION, THOROUGHLY REVISED AND RE-EDITED WITH ADDITIONS, BY WILLIAM W. KEEN, M.D., Professor of Surgery in the Woman's Medical College of Pennsylvania. To WHICH IS ADDED LANDMARKS, MEDICAL AND SURGICAL, BY LUTHER HOLDEN, F.R.C.S., WITH ADDITIONS BY WILLIAM W. KEEN, M.D. Imperial 8vo. pp. 1100. Philadelphia: Lea Brothers & Co., 1887.

THE appearance of a new edition of a world-renowned hand-book on anatomy is an important event; but the volume before us deserves particular attention, for the new English edition contains alterations of consequence, and the American edition has been still further revised and enlarged by a distinguished teacher of anatomy. The reviewer's duty under such circumstances is clear. In discussing a work which has reached an eleventh edition, which is familiar to all medical students of England and America, and probably of every part of the globe where English is spoken, and the editors of which have had the benefit of repeated criticism from all sides, he need feel no restraining pity as if he had to do with the first work of a young author, but may "cry aloud and spare not." Gray's Anatomy is certainly a good book; and this new American edition, thanks to the able editing of Dr. Keen, is a very good one. This is praise which we should hesitate to confer on the English edition, for with the advantages that we have enumerated, we see no excuse for its not being much better than it is. Dr. Keen has improved it vastly. We have to regret only that he has not done more than he has.

The section on general anatomy has been rewritten and is satisfactory. Very great detail would be out of place in a work of this kind. Recent studies on cell-structure and division are, however, in our opinion, somewhat briefly disposed of. The section on development has also been rewritten and further revised by Professor Ryder, and, it seems to us, contains all that the student needs to acquire a good general knowledge of this difficult subject, so far, that is, as such knowledge can be got from a book.

The first new feature in the section on osteology that strikes the reader

is the coloring of the lines marking the muscular attachments. This use of color is no mere ornamentation, but a real help to the student. Arteries, veins, and nerves are beautifully colored in the plates that come later and thus the book is made not only more handsome, but more useful. We cordially subscribe to Mr. Pick's opinion that one color, and not two, should be used for the muscular attachments to bone. The use of the terms "origin" and "insertion" is very arbitrary, and the practice of using two colors, as he justly points out, is very misleading to the student.

Much attention has been given to the processes of ossification, the number of centres and the time of their union, but not, we think, with great success. In many cases our knowledge is still so imperfect that several points had better have been more lightly touched upon. The foot-note showing the discrepancy of views concerning the number of centres of the acromion and coracoid must be rather disheartening to the student. On the other hand, we find the old scheme of the times of union of the several pieces of the sternum, which we hold to be quite imaginary. What practical anatomist believes that the first piece of the body of that bone does not join the second till from thirty-five to forty years? The description of the bones is very good. We see with pleasure that the fibula is described clearly with four sides and four borders; but we regret to find only one temporal ridge on the parietal. The great variation of the jugular fossa of the temporal deserves more notice, for one occasionally finds a bone in which it does not accord in the least with the usual description. The American editor has added a useful view of a section through the mastoid cells, showing their connection with the middle ear. The femur is very well treated, but we could have wished to find some mention of the occasional third trochanter. If it was worth while to have a diagram of the internal structure of the neck, there are several more modern than Ward's to choose from. Surely Bigelow's so-called "true neck" should have been described. The old idea that the angle of the neck decreases with age, is very properly put aside as resting on insufficient evidence.

So much care has been bestowed on the joints that we regret to have to note several defects. Perhaps the most important of these is the misleading definition that "rotation is the movement of a bone on its own axis, the bone retaining the same relation to adjacent parts." The radius does not rotate on its axis, neither does the femur, nor, strictly speaking, the humerus, though all are given as examples.

Dr. Keen has added several good representations of frozen sections. The myology calls for no extended comment. The references to abnormalities have been wisely omitted, as observations are multiplying so rapidly that a satisfactory treatment of the subject would take too much room. Dr. Keen has added much that is useful on surface anatomy as shown in the living model.

We must pass over the bloodvessels to reach the nervous system. The arachnoid is correctly described as a single layer instead of a serous sac. Dr. Keen has, to a great extent, taken matters into his own hands in dealing with the brain. We cannot see why he did not suppress figure 446, showing the upper surface of the brain, which has lived too long already, having passed through two editions. We confess that we are not clear what the fissure designated in it as the parieto-occipital may

really be, but we know that it is not what it is said to be, as the real one is just behind it. A foot note emphasizes the mistake by a blunder. The text correctly states that "the parieto-occipital fissure is only seen to a slight extent on the outer surface of the hemisphere," while the sham one in the picture runs far across, but does not reach the inner surface. The foot-note kindly explains that it is bridged over. The American editor has done well to introduce Ecker's diagrams, and we welcome also his remarks on cranial topography. The blood supply of the brain is also well treated in the section on vessels. With evident reluctance, the English editor at last adopts Sömmering's division of the cranial nerves into twelve pairs. We cannot help smiling at his admission that it is being "gradually adopted by anatomical writers of the present day." In point of fact, Willis's division into nine pairs is unknown, except as a matter of history, on the Continent, has but a precarious life in America, and has kept what hold it has in England solely by insular prejudice. The system will have few mourners now that it has received its *coup de grace*.

The treatment of the viscera shows marked progress. The description of the peritoneum is very good, and the figure by Dr. Delépine of the lines of reflection of the folds from the abdominal walls, is a most excellent addition. The cæcum is correctly described as completely covered by peritoneum. After these evidences of progress we are disappointed to find that the lesser curvature of the stomach extends along the upper border of the organ, though a foot-note tells us that Dr. Lesshaft thinks otherwise. We see in the same note that most of the anatomists present at London at the Congress of 1881, thought that the main axis is oblique, and were, therefore, opposed to Lesshaft's views. We wonder whether any of them dared to maintain that the lesser curvature is at the upper border. We should enjoy seeing some defender of this view demonstrate it on the cadaver. Another case of wonderful persistence of an old error is to be found in the description and figures of the liver. It still has only an upper and a lower surface, and no posterior one. The vena cava in some mysterious way runs across the lower surface, in defiance alike of anatomy and common sense. The median section of the female pelvis still shows the vagina like a tunnel, but a foot-note explains that this is for the sake of clearness. Dr. Keen has wisely added a correct section by Hart.

The surgical anatomy is very good. At the end are Holden's landmarks, with additions by Dr. Keen, of both of which praise is unnecessary. We regret that the latter has seen fit to retain the statement that the top of the œsophagus can be reached by the finger.

We have by no means exhausted our powers of fault-finding, and could pick many smaller flaws if we had the time, but, in spite of its shortcomings, the American edition is a very good work. It always has been a favorite with students, and will continue to be one with greater reason. The beauty of the plates alone is a great point in its favor. Paper, type, and binding are all good. T. D.

LECTURES ON THE SURGICAL DISORDERS OF THE URINARY ORGANS. By REGINALD HARRISON, F.R.C.S., Surgeon to the Liverpool Infirmary; Lecturer on Clinical Surgery in the Victoria University; and Member of Council, Royal College of Surgeons of England. Third Edition. 8vo. pp. xi. 588. London: J. & A. Churchill, 1887.

MR. HARRISON is well known as a sound and judicious surgeon, and this new edition of his lectures will be most welcome. Especially will this be the case from the fact that Mr. Harrison has rewritten the book and added to it the substance of two smaller volumes that he has contributed to medical literature, concerning *The Prevention of Stricture and of Prostatic Obstruction*, and *Observations on Lithotomy and Lithotomy, and the Early Detection of Stone in the Bladder*.

Like most English surgeons, and as we believe correctly, Mr. Harrison favors digital exploration of the bladder through the perineum in preference to a suprapubic opening, claiming very properly that it possesses the great advantage of thoroughly draining the bladder, thereby giving it an opportunity to rest, which rest alone often accomplishes unexpectedly good results, while it does not prevent a resort to the high operation afterward, should such a procedure be required. Mr. Harrison refers to several cases in which the double operation has been successfully done, and gives objects for which, in his judgment, an exploratory operation can be properly undertaken. These indications are the relief of otherwise irremediable symptoms, the verifying the diagnosis of tumor, and for determining the propriety of its removal; but he cautions his readers against regarding the operation as a trivial one, or one that should be performed without most careful consideration. We have thus hastily dwelt upon this portion of the book both on account of its importance, and that our readers may have an opportunity of seeing that it is brought up to the times, as well as of observing the nicely balanced judgment displayed by its author, who is himself an authority upon the subject.

Published lectures by a competent surgeon, and such most assuredly is Mr. Harrison, are always agreeable reading, though they may and, indeed, must lack that orderly arrangement and precision of detailed statement which is looked for in a systematic treatise. S. A.

THE PRINCIPLES OF ANTISEPTIC METHODS APPLIED TO OBSTETRIC PRACTICE. By DR. PAUL BAR, Accoucheur to, formerly Interne in, the Maternity Hospital, Paris, etc. Translated by HENRY D. FRY, M.D. Pp. 175. Philadelphia: P. Blakiston, Son & Co., 1887.

THIS is a book practical in its scope, well arranged, and presenting clearly the salient points of antiseptis in obstetrics.

Beginning with a fair statement of the germ theory, the author next considers antiseptic agents in detail. As is now usual, bichloride of mercury is accorded first place among antiseptics, but we are not convinced of its harmlessness by the statement that the free use of solutions

of 1 to 1000 and 1 to 2000 has produced no symptoms of intoxication at the Paris Maternity, and we share the caution well observed by the translator, who inserts an account of the toxic symptoms observed after the use of this most potent agent. Other antiseptics, including the most recent, are clearly described, and the reader is encouraged to differentiate their properties and the indications for their use.

It will be a distinct advance in obstetrics when the condition of a patient, during pregnancy, parturition, and the puerperium, determines the antiseptic treatment employed upon her person; when a careful examination of her various organs shall indicate those agents which shall not only be antiseptic, but innocuous. The antiseptics of attendants, instruments, and appliances should be invariably the most radical; but the recognition of certain susceptibilities in a patient, by reason of organic conditions, would conduce greatly to her safety. This discrimination in the choice of antiseptics will be encouraged by the author's presentation of their properties.

In uncomplicated cases the author agrees with conservative obstetricians in advising no injections of any kind; he recommends a protective dressing.

Antisepsis in maternities is historically and practically treated; the various complications of parturition are fully described, and their antiseptic treatment; and the prevention of ophthalmia neonatorum and the antiseptic treatment of the umbilicus complete a full and practical manual.

The translator has rendered obstetricians a service especially timely, now that antisepsis has gained its intelligent middle ground, by placing at their disposal their discriminating book.

E. P. D.

INTUBATION OF THE LARYNX. Papers read before the New York Academy of Medicine, in the Stated Meeting of June 3, 1887. By A. JACOBI, JOSEPH O'DWYER, FRANCIS HUBER, DILLON BROWN, W. P. NORTHRUP, J. H. HANCE, and A. CAILLÉ. 12mo. pp. 68. New York, 1887.

THIS pamphlet of 68 pages contains a full presentation of the views of those whom experience best entitles to pronounce upon the subject of intubation. A table of 806 cases which it contains gives a recovery of 221 or 27.4 per cent. An idea of the present status of intubation may be obtained from the following quotation from the remarks with which Dr. A. Jacobi closed the discussion at the Academy of Medicine: "While appreciating the complimentary remarks referring to him, he acknowledged the correctness of the statement that, until a recent period, he never had anything but adverse criticism for intubation. Even in the third volume of 'Pepper's Cyclopædia' he had expressed himself in the same spirit. He was willing and anxious to admit that he was then mistaken; that he was now, and had been for some time convinced of the correctness of everything that had been claimed for intubation, and was looking forward for such improvements in instruments and methods as would make intubation more and more easy and successful."

F. P. H.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

BERGEON'S METHOD.

The method of rectal gas injections, devised by Bergeon, can now be judged in a more logical manner than was possible during the existence of that epidemic enthusiasm which swept the universal medical profession a few months ago.

A new research carried on in the Pressburg General Hospital by DR. GABRIEL PAVAI-VAJNA, appears in the December number of the *Centralblatt für die gesammte Therapie*. His conclusions may be summed up in the following statements:

Bergeon's treatment has no action on the bacillus. It has little influence over the local morbid process, nor does it prevent further infiltration of the pulmonary parenchyma. It does moderate the cough, lessens the fever heat and sweats, increases appetite and digestion, and thus promotes constructive tissue metamorphosis.

The method of Bergeon does not have any important advantage over the treatment by suitable hygienic arrangements, and the administration of creasote, according to the method of Sommerbrodt, Fräntzel, and others—especially the subcutaneous administration of the medicament.

GUAIACOL IN PHTHISIS.

DR. SAHLI (*Centralblatt für die gesammte Therapie*, December, 1887) proposes to substitute guaiacol for creasote by the method of Sommerbrodt and Fräntzel. In the less severe cases, and in the incipient stage, it has proved to be highly useful. The special results of the administration of guaiacol are these:

It moderates the cough, and facilitates expectoration. It increases the appetite and the digestive power, and thus improves the general condition.

Guaiacol is not equally well borne by all patients. In some instances it causes diarrhœa, and in others an extreme repugnance to its taste is developed.

AMYLENHYDRATE AS A SLEEP-PRODUCER.

In a recent paper (*Therap. Monatsch.*, October, 1887, and *Centralblatt für die gesammte Therapie*, No. 12, 1887) DR. SCHARSCHMIDT has published the experience obtained by the use of amylenehydrate in Prof. Jolly's clinic. The results were acquired by observation on eighty patients affected by melancholia, dementia paralytica, primary and alcoholic dementia, mania, acute delirium, delirium tremens, and other psychoses.

As compared with chloral, paraldehyde, and urethan, Dr. Scharschmidt found amylenehydrate stands next to chloral in point of efficiency. It is more effective than chloral in some instances, and is more powerful than paraldehyde in equal doses.

STRYCHNINE IN ALCOHOLISM.

PROF. DOBROURAVOW finds that strychnine (*Wratsch* quoted in *Bull. Gén. de Thérap.*, December 15, 1887) is a remedy of great value in alcoholism. His conclusions are based on an experience with forty cases.

In acute cases with much excitement and wakefulness, he gives chloral with strychnine—the latter by subcutaneous injection. The sleep resulting from the action of these remedies has been calm and free from hallucinations. The nausea and vomiting which are such serious accidents, and the hepatic congestion so often present, are removed without the use of special means. Dobouravow notes, also, that the exaggerated impressionability, the excitement, and the trembling of the tongue and limbs also disappear under the action of strychnine given in increased quantity. In one instance the subcutaneous injection of $\frac{1}{2}$ grain caused some convulsive movements of the muscles of the lower extremities and chest, but they quickly ceased on the administration of potassium bromide. The usual strength of the injections ranged from $\frac{1}{100}$ grain to $\frac{1}{30}$ grain of the alkaloid.

BENZOATE OF SODIUM IN URÆMIA.

PARZEVSKI puts forth some remarkable claims regarding the curative power of sodium benzoate in uræmic intoxication (quoted in *Bull. Gén. de Thérap.*, December 15, 1887). He administers four to eight grammes (3j–3ij) a day, in solution or capsule, the latter preferably. Twice the quantity can be given by the rectum if well diluted. Under the action of this remedy the paroxysms lessen in severity, the intervals grow longer, and the convulsions after a time cease entirely. Profound sleep is induced by it, and during this the cerebral functions are restored. When albuminuria exists, a marked diminution occurs in the quantity present, or the albumen disappears entirely.

THE MILK REGIMEN IN RENAL DISEASES.

DR. LABADIE-LAGRAVE has anew called attention to the good effects of a milk regimen in renal affections (*Revue de Thérapeutique*, December 15, 1887). Although a topic well threshed out, its native importance justifies a fresh statement from competent authority.

Our author cites experiences showing the remarkable utility of the milk

cure in general dropsy. Claudot and Paulier relate cases in which cures were effected in a very short time. Prof. Jaccoud—than whom there is no higher authority—gives the history of a case under his own charge, cured in a few days of a general dropsy five months in duration.

Debove says that by the milk regimen he has effected prompt removal of dropsy, has stopped the excretion of albumen, and prevented uræmic poisoning. Acute nephritis in its incipient stages has been cured by milk regimen.

In chronic parenchymatous nephritis the results obtained from the milk cure are not so imposing. Although cures are not reported, decided amelioration of all the symptoms certainly occurs. The symptom "dropsy" is more certainly influenced by the milk regimen than any other of renal origin.

CHOLERA INFANTUM.

DR. CAYLA recommends the following:

R.—Potassii bromid.	. . . . .	gr. viij.
Tinct. belladonnæ	. . . . .	℥viiij.
Syrupi	. . . . .	℥ss.
Tinct. menthæ	. . . . .	℥xvj.
Aquæ	. . . . .	℥ss.—M.

Dose, a teaspoonful.

NAPHTHALIN IN INFANTILE DIARRHŒA.

DR. LOUNINE reports (*Wratsch*, quoted in *Bull. Gén de Thérap.*, December 15, 1887) that he has had no remedy to act more efficiently in chronic infantile diarrhœa than *naphthalin*. It has powerful disinfectant action, which may be kept up for a long time without risk, and hence it is the more valuable. Extensive use in the children's clinic at St. Petersburg has demonstrated that it possesses curative power that approximates to specific in the chronic diarrhœa of children.

ANTIPYRIN IN HÆMOPTYSIS OF VARIOUS ORIGIN.

DR. BYVALKEVITSCH reports his results in six cases of hæmoptysis due to various causes. In doses of twenty to eighty grains he has arrested hæmorrhage when such an approved remedy as ergot had failed, and hence he regards it as our most valuable remedy in hæmoptysis. (*Ibid.*)

TREATMENT OF SYPHILIS BY DEEP INJECTIONS OF THE OXYPHENATE OF MERCURY.

The subcutaneous injection of mercury in the treatment of syphilis has long had a place amongst our resources. The substitution of insoluble preparations has recently grown much in favor. Amongst these may be mentioned the oxyphenate, recently proposed and used by CHADEK (*Ibid.*). He prefers the following: 2 to 100, or 2 per cent., in mucilage of gum Arabic. This is less painful than other mercurial salts, is readily absorbed, and the results of the practice admirable.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,
ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,
PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-
DOOR DEPARTMENT, NEW YORK.

THE CURE OF BIEMER'S PERNICIOUS ANÆMIA BY THE EXPULSION OF BOTHRIOCEPHALUS LATUS.

The statements of Runeberg that pernicious anæmia is in some instances produced by *Bothriocephalus latus*, and is cured by the expulsion of the worm, met with the greatest opposition at the Congress of Naturalists and Physicians, in Berlin, in 1886. SCHAPIRO (*Zeitsch. f. klin. Med.*, B. xiii. H. 5, 416) reviews all that was urged on that occasion, as well as what has been written by Hoffmann, Holst, Reyher, and others on the subject, and reports a most interesting case. The patient, thirteen years old, presented increasing weakness, excessive waxy pallor, œdema of the ankles, syncopal attacks, epistaxis, petechiæ, and palpitation of the heart. The fat was not at all diminished, and there was slight elevation of temperature. The number of red blood-cells became reduced to 837,000, and the hæmaglobin to about three per cent., and there was marked poikilocytosis. In fact the case was, the author claims, a typical one of pernicious anæmia. Several pieces of tape-worm and numerous eggs had been seen in the stools. After the administration of an anthelmintic and the expulsion of at least twenty-three metres of tape-worms the patient began and continued to improve until discharged. A few days after getting rid of the parasites there was a decided rise in temperature; this being a very frequent occurrence in cases where, after the death of the worm, expulsion does not take place at once. It is due, probably, to the decomposition of portions of it in the intestine, and to the absorption of the products.

Unless the word "pernicious" is to be taken as meaning "fatal"—an interpretation strongly objected to by Quincke, among others—we have no reason to consider this case other than an instance of pernicious anæmia, since the absence of discoverable cause should not be deemed a characteristic of the disease. There are cases of simple anæmia for which no cause can be found. In what way the parasites can produce the anæmia is still a disputed point. The *Bothriocephalus* shows no disposition to bore into the intestinal wall and thus abstract blood, as Reyher presupposes; nor does the simple absorption of food by the parasite account for it, since often patients with a large number of them exhibit no marked anæmia. Nor can the entrance of any infecting morphological elements from the worm into the blood be the cause, otherwise recovery would not be so rapid. Scharpiro believes the anæmia is due to the entrance into the blood of some poisonous chemical matter produced under

certain conditions by the parasite. Runeberg did not say that these parasites were the sole cause of pernicious anæmia, or that they always produced the disease. There seem to be certain unknown conditions which render the inhabitants of certain localities particularly liable to develop pernicious anæmia when afflicted with tape-worms.

PNEUMOTHORAX.

WEST (*Lancet*, 1887, ii. 353) makes this the subject of a lecture before the Royal College of Physicians, England. Phthisis, he says, is the primary lesion in at least ninety per cent. of all cases; seven to eight per cent. are due to gangrene or acute inflammatory disturbances of the lung, or to injury of the thorax; and the remaining, two to three per cent., are the result of all other causes. The author wishes to refer only to two classes of cases: first, those in which the affection has occurred in apparently healthy persons; and, second, those where the pleural cavity has been opened by some injury. Many cases of the first group have been reported, but there have been no autopsies made to confirm the diagnosis. It is certainly possible that the lung of a healthy person may be ruptured by straining, as in whooping-cough or in parturition, but subcutaneous emphysema rather than pneumothorax is commonly the result. This has been proved by the experiments of Champneys on the lungs of infant cadavers, as well as by the results of autopsies by the same author and by other investigators on a large number of children. West reports his experiments on adults, which agree in the main with those referred to. He found that to rupture a healthy lung within the body a pressure must be exerted far beyond that which can be produced by the most violent expiratory efforts, unless the normal pulmonary resistance be very greatly reduced. Now in the recorded cases of pneumothorax in the apparently healthy there is a complete absence of a history of forcible respiratory effort. Frequently the condition develops during sleep, or while the patient is sitting or walking quietly; and it is, therefore, probable that the lungs in these cases were not really sound. Yet it is remarkable if the lungs were truly unsound that the pneumothorax should so often later disappear and recovery take place. The author reports several instances where the most careful examination failed to reveal any disease of the lung, but where other circumstances or the later course of the case indicated that a local phthisical process had existed. He concludes that many, if not all, of the cases of pneumothorax occurring in the apparently healthy are really due to some previously existing lesion.

In the second group of cases, where the pleural cavity has been opened by some injury, the usual explanation is that the pneumothorax is formed by the natural elasticity of the pulmonary tissue pulling the pulmonary from the parietal pleura. The author does not believe that this explanation is entirely correct, since there are instances where the air does not enter, though the pleura be opened. There are, indeed, two classes of these cases. In the first, where the thorax is opened from outside, the lungs are sometimes seen in close apposition to the chest-wall. The second class, where the lung is torn without an external wound, is also quite frequently observed. Fracture of the ribs with injury of the lung belongs here, since pneumothorax rarely follows this acci-

dent. The explanation of these cases must lie in the presence of some force which overcomes the normal elasticity of the lung; and the author claims that this power is only to be found in the cohesion between the two pleural surfaces. He made and details several experiments on the cohesion of the peritoneal layer of two pieces of stomach stretched upon wooden disks; in which he found that the power required to separate them was greater than the strength of the normal pulmonary elasticity. Pneumothorax cannot, therefore, be regarded as a condition to which there is an inherent tendency in the human body, but rather one for whose production force must be used sufficient to overcome the normal cohesion of the pleural surfaces; and this force is the expiratory process. It is the pressure during expiration which first separates the two pleura; though later the pulmonary elasticity comes into play.

A sharp distinction must be drawn between expiratory and inspiratory pressure. The first is always positive, except when there is a large and patent opening to the pleural cavity. The second—*i. e.*, that at the end of inspiration—equals 0, if the opening be valvular, as it usually is; for the air continues to be admitted, and is retained in the thorax until the pressure is equal to that of the atmosphere outside. A rise in the inspiratory pressure now indicates the action of some other cause; usually the presence of fluid. The expansion of the gas following a rise of body-temperature might produce the same result, but as the fever is nearly always due to the formation of an effusion, it is not likely to cause any difficulty in diagnosis. It must be carefully borne in mind, however, that fluid may be present, and the inspiratory pressure not rise.

Another point of interest is the respiratory oscillation—*i. e.*, the difference between the inspiratory and the expiratory pressure. On quiet respiration this is usually about three millimetres of mercury, or one and a half inches of water. Under two conditions there is very little respiratory oscillation: first, where air passes in and out freely through a large opening; second, when the opening is closed and the inspiratory pressure is high. The author reports a series of cases with the variations in pressure and in respiratory oscillation after repeated tapplings, and which confirm this statement, that respiratory pressure is an evidence of the presence of fluid. Displacement of the organs, especially the heart, is due to the retractile power of the lungs themselves, but it is clear that a rise in the intrapleural pressure will increase it.

The author emphasizes the fact that the displaced heart is not rotated, but simply pushed bodily over, and he gives a drawing of a case illustrating this. The displacement is the same, whether due to air or liquid. He has not been able to discover any sharp bending of the vena cava in this condition, nor has he ever seen an instance in which high intrapleural pressure changed a tympanitic note to one of a dull tone. The onset of pneumothorax, though usually sudden, may be entirely devoid of symptoms. The prognosis is unfavorable, but recovery may take place in one of two ways, *viz.*, it may be gradually converted into a pleural effusion by the development of fluid, either serum or pus, and the disappearance of air; or the air may go without any effusion appearing. This last is by far the least common method, though not actually rare. The re-expansion of the lung, after the removal of air or fluid,

is a question to be considered, since the usual explanation is not altogether satisfactory. The theory that adhesions form and pull the lung into contact with the chest-wall assumes that the pleural cavity becomes obliterated, and is certainly not true, at least in the cases of rapid recovery.

The author believes that the fluid is pumped out by the lymphatics through the respiratory movements, aided by the easy transudation through the lung itself, and by simple absorption. The cessation of inflammation probably removes the obstructions, and allows the same agencies to operate which keep the healthy pleura empty. The pleural surfaces are thus permitted again to come together, and cohesion keeps them in this position. The removal of air is rather more difficult of explanation. Having entered the pleural cavity it soon changes its chemical nature, if the entrance aperture be closed. Its final disappearance cannot be due to simple diffusion between the altered air and that in the lungs, for this would lead to uniformity, and not to removal. The complete disappearance of the oxygen of the mixture of gases in the pleural cavity is brought about by absorption through the blood. Experiments have shown how rapidly this takes place in the case of air in the lungs; and the process is the same in the absorption of oxygen in pneumothorax. It is probable that at first carbonic acid is actually discharged from the blood into the pleural cavity, just as occurs in the lung itself; but it is finally all reabsorbed. In the removal of both of these gases there are produced loose chemical combinations in the serum and blood cells. In the case of nitrogen it is possible that some such combination assists simple absorption; but this gas is at least chiefly removed by the latter process. The treatment of pneumothorax the author regrets to leave undiscussed.

CASES OF PNEUMOTHORAX IN PERSONS APPARENTLY HEALTHY.

In connection with the article of West, the paper of HALL is of interest, appearing in the *Clinical Society's Transactions* for 1887, p. 153. He collects altogether, with his own case, 31 instances of this condition, including all that have been reported. In analyzing these we are struck at once by the great preponderance of males. The immediate cause of the pneumothorax was some strain. The age of the patients is also noteworthy, as it was nearly always less than thirty-eight, and in most cases was even below thirty years. Recovery usually occupied from one to two months. As to the pathology, we are somewhat in the dark. There may exist causes external to the lung itself, and those within it are probably the result of changes in the pulmonary tissue. The first can be but rare (trauma is not included in this list), though it is supposable that if an old pleurisy be present, an unusually violent exertion may throw such a strain on the adhesions as to cause them to tear away part of the visceral layer of the pleura. But the most frequent agent is probably the breaking down of some unsuspected tubercular nodule in the lung; or, less commonly, the rupture of an emphysematous vesicle.

The diagnosis is usually easy. There is one sign, however, the value of which is doubtful—i. e., metallic tinkling. It seems highly probable that it may occur when there is no other sign of fluid in the pleural cavity. Treatment requires but few words. Diffusible stimulants should be employed at

the time of the first onset, if needed; later, careful purgation if the venous system is engorged, and paracentesis if there is excessive dyspnoea.

The author appends a tabular statement of 10 patients not included in West's list of 21 cases.

OBSTRUCTIVE MITRAL MURMURS.

BRISTOWE (*Lancet*, 1887, ii. 952) writes that there are two well-marked varieties of obstructive mitral murmurs; of which the first, the presystolic or auricular-systolic, occupies the last part of the diastolic period, running up to the first sound of the heart; while the latter is a diastolic murmur, commencing with the second sound and dying away during the diastole. The first is the more common, more frequently met with, and more characteristic. It is sometimes long, sometimes very short, very rough; sounds like a trilled "r," or like a saw; begins in the diastole and increases in force until it culminates in the first sound. It is usually only audible over a very limited area, the centre of which is a little above and to the right of the apex beat, and it is faintly or not at all heard in the axilla or at the angle of the scapula. The second forms the early diastolic murmur, runs off into the second sound like the murmur of aortic regurgitation, and tends to die out in the cardiac silence. Its seat of maximum intensity is not uncommonly the junction of the left fourth costal cartilage with the sternum, and it may sometimes be heard here disassociated from its presystolic companion. It is generally shorter and rougher than the aortic regurgitant murmur, but is rarely as rough as the presystolic, and sounds more like the untrilled "r." It may easily be confounded with the former when this is inaudible over the base of the heart.

Still a third diastolic mitral murmur occurs isolated in the diastolic period, usually nearer to the second sound than to the first. It is of longer duration than the second sound, usually feeble, limited to the region of the presystolic murmur, and is independent of any reduplication of the second sound heard at the base of the heart. The three murmurs might be conveniently termed the "early," "mid," and "late" diastolic murmurs. They may exist separately or combined in various ways. Thus we may have a continuous but uneven murmur filling up the whole diastolic period. Bristowe believes that the three murmurs are really parts of one potential murmur—i. e., are but fitful and accidental roarings of one continuous torrent. This view is confirmed by the fact that each is liable to come and go as no other organic murmurs do; and that they, and especially the last two, are apt to replace one another. Again, though the first two are usually feeble and indeterminate, yet when both are present, and are, moreover, combined with the last, they present all the vibratile roughness which is characteristic of the presystolic murmur. In some cases he found the roughest and loudest portion of the whole-length diastolic murmur to be the middle half.

The second sound of the heart is to be studied in connection with mitral obstructive disease. As in mitral regurgitation, the second sound over the pulmonary area becomes accentuated, and that over the aortic area is unchanged or enfeebled. Over the apex it is still weaker, though the author cannot remember an instance in which he has failed to hear it in this locality.

A reduplication of the second sound frequently accompanies mitral obstruction, but is a variable phenomenon, and is apt to come and go in the same case. When present, it is heard most distinctly at the base of the heart near the aortic valves, since it seems to be due to their lagging. Reduplication of the second sound, heard only at the apex, is an impossibility; and the mid-diastolic murmur which is, as stated, audible only in this vicinity, cannot therefore be an instance of this phenomenon.

The presence of a thrill at or near the position of the apex beat has always been regarded as characteristic of the forward rush of blood through a contracted mitral orifice, whether or not the rush produced any audible sound. Sometimes, however, the only or the most marked thrill seems to accompany the ventricular systole.

It is by no means uncommon to find a regurgitant and an obstructive mitral murmur associated, and made continuous by the intervention of the first sound of the heart; although they are entirely distinct from each other in their nature, position, and rhythm. The presystolic murmur precedes the carotid pulse, is always rough, increases in intensity as it runs up to the moment of the apex beat, and blends with the first sound. It is heard over a very small area.

The systolic murmur begins with the apex beat and the carotid pulse, is musical or blowing, and dies away into silence. It is quite widely diffused, and may be heard in the axilla, at the angle of the scapula, and over the base of the heart, as well as over the area for the presystolic murmur. Sometimes the systolic is combined with the early diastolic murmur.

Regarding the manner in which the obstructive mitral murmurs are produced, Bristowe agrees fully with the explanation given by Gairdner years ago, viz., that they are due to the rhythmic vibration of the blood passing from the auricle through the contracted mitral orifice. The presystolic murmur is coarser and louder than the other two because the systole of the auricle immediately precedes that of the ventricle, and increases the force of the blood current from the former to the latter. That the early and mid diastolic murmurs are produced in this way no one has denied; and there seems no good reason to believe that the presystolic is not developed in the same manner. The author devotes some space to the discussion of his grounds for this view, and to the arguments of others who hold different opinions.

He then considers briefly hæmic murmurs, which strikingly resemble in many respects the group of mitral obstructive murmurs. They are sharp and rough, more "scratchy" than the latter, and are generally best heard at the point of union of the third left costal cartilage with the sternum, extending thence into the second and third interspaces, and are even perhaps prolonged a little way down the left border of the sternum. They are so rough that they resemble pericardial friction. Sometimes they occupy the whole of the systolic period; sometimes they begin with the first sound and die away like a murmur of mitral regurgitation, and sometimes they occupy only the latter part of the systolic period, and, increasing in force, run into the second sound. The author does not know how they are produced, but thinks the cause is some want of due relation between the quantity of blood expelled from the ventricle and the size and tension of the pulmonary artery.

THE DIAGNOSIS OF CARCINOMA OF THE STOMACH.

ROSENBAACH (*Centralblatt f. klin. Med.*, 1887, p. 585) says he opposed the views of Riegel some time ago, and his later experience has but strengthened the opinions he then expressed. He does not consider the reaction for free acid (hydrochloric) of any importance in the diagnosis of gastric cancer. In five undoubted cases of the disease he has since his former publication found free acid in most of the observations made; and in three of them the autopsy confirmed the diagnosis. It is not always easy to choose the proper time for the examination of the gastric contents. In some cases of gastric insufficiency in which no acid was found five or six hours after meals, it was detected eight to ten hours after the ingestion of food. The occurrence, indeed, of free acid depends on whether there is any substance present capable of uniting chemically with it; and this again depends on several factors; such, for example, as the nature of the food, and the powers of secretion and absorption of the mucous membrane. In general, we can expect that in the normal stomach the farther the preparatory softening of the food advances, the faster will the free acid enter into combination. To this rule there are some exceptions; namely, when the secretion of acid is very abundant; and when the food remains too long a time in the stomach; for having already taken up all the acid with which it could combine, its presence here acts as an irritant to the mucous membrane, and causes a prolonged and unneeded secretion. An abundant amount of acid may, therefore, be either the result of the activity of the normal stomach, or of the organ in a pathological condition; and we are thus obliged in different cases to draw different conclusions from the same degree of acidity. The opinions of the author have been reached by the examination of a large number of patients. He believes that at least a large part of the cases of so-called "hypersecretion" of hydrochloric acid are due to insufficiency of the stomach, brought about often by stenosis of the pylorus even of a cancerous nature; as in a patient whom he has recently had under observation.

As regards the condition of the peptic strength to which Riegel attributes so much importance, it is clear that peptic strength can only be present in the filtrate of the gastric contents when there has been an excess of acid and pepsin present. On the other hand, if there is no free acid in the filtrate there will be no digestive strength. It would seem, therefore, that the testing of the peptic strength is a method of but little value, and that the result may be foretold from the chemical examination for acid. Moreover, the failure of the filtrate to digest does not prove that the gastric secretion had had no digestive power, but only that its strength has been exhausted by the food with which it had been in contact. To ascertain the real capability of the secretion of the stomach, we must rely on another and a better method; the determination of the presence of peptone. If peptones be found, then the time of the ingestion of food and the intensity of the peptone reaction are to be taken into consideration, and in this way we may draw valuable diagnostic and therapeutical conclusions concerning the real condition of the gastric secretions. As a matter of fact, the author has but rarely failed to find peptone by the biuret reaction in cases of carcinoma; and then only toward the termination of the disease. The use of artificial digestion for diagnostic purposes he has not found necessary; and if it is to be used at all,

the pure gastric juice should be employed, obtained from the empty stomach by one of the usual methods.

DIET IN ALBUMINURIA.

STEWART (*Practitioner*, 1887, 39, 107), in beginning a lecture on this subject, first considered the production of albuminuria by diet. In certain individuals the ingestion of any food whatever is followed by transient albuminuria. Experiments have been made to determine the influence of egg albumen on the urine; and it has been found by Stokvis and others that when injected into the veins of animals it produced albuminuria, while the injection of serum albumen did not have this effect. It has been further proved that the rectal injection of egg albumen was attended by like results. As the testimony regarding the effects of eggs when taken by the mouth is somewhat contradictory, the author has himself given some attention to the subject. The results of his experiments, made upon four individuals, lead him to believe that the introduction of egg albumen into the stomach produced slight albuminuria; the albumen in the urine not consisting of egg albumen, but of serum albumen; as shown by the fact that it redissolved in an excess of nitric acid, which the former does not do. The explanation lies, he thinks, in the increased activity of the liver caused by the excessive amount of proteid material absorbed. Through this increased activity the red globules were more rapidly destroyed, and the albumen from them—not being all changed into urea—is eliminated by the kidneys. The increased amount of urea excreted in his cases seems to confirm this view.

As cheese is closely allied to albumen, he also made experiments with it; giving a liberal supply to twenty healthy boys; but the results indicated that this article of diet had no effect in producing albuminuria. On the other hand, six walnuts were given to each of ten healthy boys, and the results indicated that albuminuria could in this way be produced in some of them. The general conclusion is, that certain individuals exhibit albuminuria after eating any form of food, and in others it can be produced by special articles of diet; yet the quantity of albumen is always slight, and has little tendency to persist.

The author then presents the subject of diet in Bright's disease. After giving some of the conclusions of other writers, he publishes five tables of diet, as they were employed in his experiments on patients—viz.: (1) *Ordinary diet*: meat, bread, potatoes, sugar, milk, butter, in stated quantities. (2) *Large diet*, differing from (1) in the larger amount of meat and potatoes allowed. (3) *Milk diet*: eighty ounces of milk a day. (4) *Low diet*: bread, potatoes, sugar, milk, butter, in definite amounts, but no meat. (5) *Low diet with eggs*: eight raw eggs a day in addition to (4). Various patients were treated according to these different diet lists, and the effect on the specific gravity and the quantity of the urine, and of the excretion of albumen and urea, were noted. The author found that three cases of inflammatory Bright's disease were best treated by a low diet or a milk diet. One case of cirrhotic Bright's disease, with inflammatory trouble superadded, was unaffected by either ordinary or milk diet. Several cases of pure cirrhosis of the kidney seemed to indicate that diet is a less important factor in this form. In cases

of amyloid disease full nourishment should be employed, in spite of the fact that it is liable to increase the amount of albumen excreted.

As regards albuminuria not dangerous to life: the diet of febrile albuminuria is a matter of little consequence, except in scarlatina, where a large diet is dangerous. That due to digestive derangements should receive the diet which is suited to the condition of the digestive apparatus in each case. That connected with nervous disease or glycosuria demands no special diet for it.

Functional albuminuria is divided into—1, paroxysmal; 2, dietetic; 3, that due to exercise; 4, simple persistent. The first needs no special diet; the second requires that suited to each individual case; the third seems to be uninfluenced by the nature of the food; the fourth is also probably very little influenced by diet.

In accidental albuminuria, diet is often of the greatest importance. Especially in cases of catarrhal inflammation of the urinary tract is a bland, mild diet to be advised.

Alcohol is, as a rule, to be avoided in Bright's disease, and in inflammatory accidental albuminuria. In moderation it does not seem to be injurious in cases of circulatory albuminuria.

THE NATURE OF THE FAT CRYSTALS IN FECES.

STADELMANN (*Deutsch. Archiv. f. klin. Med.*, xl. 3-4, 372) finds fat crystals in the feces most commonly in icterus and in diseases of the pancreas. It is generally admitted that they are either fatty acids or their compounds, the soaps; but to which of these two classes they belong has been a question not yet positively determined. The author reports two cases. The first exhibited a painful tumor in the right hypochondrium, jaundice, emaciation, and whitish stools which contained fat globules and long, fine, needle-like crystals. The diagnosis of carcinoma of the liver and gall-bladder was made, but never confirmed by an autopsy. The second case was much emaciated, and exhibited a much swollen, tender abdomen, with fluctuation in the lower parts, and thin, grayish stools containing very numerous crystals. There was no icterus. The weakness steadily increased, and the patient finally died. The autopsy showed the gall-bladder to be very small, chronically inflamed, and completely filled with gall-stones. There was extensive ulceration of the intestines dependent on the presence of numerous, small lympho-sarcomata here as in several other organs. Other changes were observed elsewhere than in the digestive tract. The pancreas and liver were normal in microscopical appearance. Stadelmann then explains his careful examination into the nature of the crystals of the latter case, and concludes that they constituted a combination of one of the fatty acids with soda;—i. e., a soda soap; but just which of the acids was present he was unable positively to determine.

The absence of icterus and of disease of the pancreas or liver in this case, proves that other causes than those usually accepted, may produce fat crystals in the feces. The author believes that the extensive ulceration in the intestine, with the destruction of the follicles of Lieberkuhn, hindered both the secretion of the intestinal juices, and the absorption of the fats which had been emulsified there, and which consequently appeared in the feces.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.

SURGEON TO THE PHILADELPHIA HOSPITAL; CLINICAL PROFESSOR OF GENITO-URINARY SURGERY
IN THE UNIVERSITY OF PENNSYLVANIA.

CANCER AND CANCEROUS DISEASES.

SIR JAMES PAGET calls attention in the *Lancet* of November 19, 1887, to the likeness existing between cancers and innocent tumors on the one hand, and specific and micro-parasitic diseases on the other. Cancers and simple tumors agree in the fact of their purposeless or selfish growth, having no relation to the plan of other parts, or to usefulness; the typical examples of each class are connected by examples of intermediate forms of all grades. There are, however, still greater points of difference, which are indicated by the word "malignant," describing truthfully the biological characters of the cancerous group. The other group—the "specific" diseases—includes those in each of which the phenomena of common diseases—*i.e.*, of such as might be produced by injuries or external irritation in healthy persons—are modified in some definite manner, giving them what we call specific characters.

It is now practically demonstrated that each specific disease is due to the influence of a distinct morbid substance in some part or parts at which the symptoms are shown. This "morbid substance" is, in the vast majority of cases, a microbe, a bacillus, a low vegetable organism, and Sir James thinks that some day micro-parasites, or substances produced by them, will be found in essential relation with cancer.

Cancer is allied to the group of specific diseases including syphilis, tuberculosis, glanders, leprosy, and actinomyces. They are all essentially morbid growths, self-maintaining; have special modes of degeneration and of ulceration, to which they all tend; are all at some time either infective to parts far off by transmission of materials through lymphatics or bloodvessels, or to adjacent parts by invasion, or to other beings by inoculation; they all occur by preference in parts the subject of local injury or irritation. These are strong likenesses, and as we know that in tuberculosis, syphilis, and leprosy, there is in each case a specific morbid material in the blood, so we should believe that there is one in cancer.

In addition to the presence of the virus in the blood in all the specific diseases, there must be an appropriate part, texture, or place on which this material can exert its influence. The bacillus of tetanus is harmless until it reaches the spinal marrow, and that of hydrophobia until it reaches the brain; so must there be some part susceptible to the influence of cancer before the disease develops. If this susceptibility be absent, the morbid material may remain harmlessly in the blood, as in the case of syphilis and of malaria, in which years intervene between successive symptoms. Local injuries are effective by reducing the resistant power of the part. Secondary

cancers are not always due to transference of cancerous material from primary growths. Hereditary transmission must include theoretically both the tendency to the production of cancerous material in the blood and the susceptibility of special parts; but its precise method remains undiscovered.

Sir James, in concluding this admirable lecture, asserts his belief that we may reasonably hope for a remedy as efficient against cancer as mercury and quinine are against syphilis and malaria—*i. e.*, a specific remedy for a specific disease.

CHIAN TURPENTINE IN THE TREATMENT OF CANCER.

MR. JOHN CLAY reports (*Ibid.*) four cases of epitheliomatous growths of the uterus and vagina, uterus, tongue, nose and face, in which the disease disappeared under the use of Chian turpentine. In two of the cases the diagnosis was confirmed by Mr. Knowsley Thornton, in one by Mr. Jonathan Hutchinson. In two resorein was used in conjunction with the turpentine, in one compound sulphur pills, in the other the turpentine alone. The local treatment varied.

THE GONOCOCCUS.

R. JAMIN, in a review published in the *Annales des mal. des org. génito-urinaires* (November, 1887), describes the experiments of M. Oree! upon twenty-one patients, leading to the following conclusions:

The gonococcus dwells not only in hemorrhagic pus, but in the depths of the tissues. Micturition and even the washing out of the urethra are not sufficient to remove it, as it may be still found immediately after by scraping the surface with a curette. He believes that, as he has found the gonococci obtained in these scrapings with no admixtures of cellular elements or pus globules, that the penetration of the latter by the microbe occurs on the surface of the mucous membrane or in the lumen of the canal.

CASTIAUX, Professor of Legal Medicine at Lille, in a case of alleged rape, is said to have removed the difficulty of recognizing the micrococci after maceration of the fragments of pus-stained linen by making cultures in agar-agar peptonized and sweetened. He and his colleagues testified to the specific character of the spots and convicted the accused.

DR. GIOVANNINI, on the contrary, has been led by cultures of gonorrhœal pus made in the general pathological laboratory of the University of Bologna, to the following conclusions:

1. The muco-pus of gonorrhœa contains five species of micro-parasites, differing morphologically and in the results of their cultures.
2. Two of these are found in normal urethras of healthy men.
3. Some of them are related to those which cause ammoniacal fermentations of the urine.
4. They do not give rise to suppuration when injected under the skin or into the peritonæum of rabbits.
5. They did not produce gonorrhœa when placed in contact with the urethra in man.
6. It is not possible at present to cultivate a micro-parasite possessing the pathogenic properties attributed to the gonococcus.

THE RELATION OF SYPHILIS TO RICKETS.

MM. CAZIN and ISCORESCO, after an extended study of this subject (*Archives générales de Médecine*, September, October, and November, 1887), arrive, among

others, at the following conclusions: The bony lesions in the two conditions are either quite different, or are common to other diseases. Syphilitic bones never present the spongy tissue peculiar to rickets; rachitic bones never show the characteristic multiple osteophytes of syphilis; anatomically the two morbid processes are entirely distinct; syphilis may precede, but cannot be viewed as giving rise to rickets, though it sometimes produces osseous deformities, which may be included within the general title of syphilitic pseudo-rachitis.

INTUBATION OF THE LARYNX IN CROUP.

DR. JOSEPH O'DWYER reports (*The Medical Record*, October 29, 1887) fifty cases of croup treated by intubation. Prior to the time covered by this report—that is, from January, 1880, to December, 1885, or during the experimental stage of intubation, he operated on sixty-five cases of croup, sixty of them being in the New York Foundling Asylum, and had but nine recoveries, or not quite fourteen per cent. Of this later series of fifty cases, twelve recovered, or twenty-four per cent. He has never resorted to intubation until the symptoms of laryngeal obstruction were so urgent as plainly to indicate impending suffocation, unless the child was relieved by operation. These symptoms were marked recession of the supra-clavicular and episternal regions, restlessness, and absence of respiratory murmur over the lower posterior portion of the lungs. Persistent cyanosis was also present in many of the cases, but this comes too late, and is too uncertain a symptom to wait for.

Out of the twenty-four cases from which the urine was obtained for examination, albumen was found in nineteen. The cause of death was due in eighteen cases to extension of membrane to the bronchi, in five cases to exhaustion, in five cases to nephritic complication, in four cases to pneumonia, in three cases to sepsis, in one case to œdema of the lungs, in two cases not stated, as they were not seen after operation. Total, thirty-eight cases.

In the twelve cases that recovered, the tube was retained on an average of five days and seven hours.

The thirty-eight cases that died lived on an average of two days and seven hours after intubation. The duration of the laryngeal symptoms before intubation averaged three days and six hours in those that recovered, and two days and six hours in those that died. No autopsies were obtained, and it is quite probable that broncho-pneumonia, not revealed by the physical signs, existed in a much larger number than given above.

He describes fully the steps of these procedures, and states that in cases that progress favorably the tube should be removed on or about the fifth day. In the twelve recoveries reported in this paper the tube was retained, on an average, five days and seven hours. In the youngest of these, aged fifteen months, it was worn nine days, and had to be reinserted on the eleventh day, but was retained then only two hours. The age, therefore, must be considered in determining the time the tube should be removed. It can, as a rule, be dispensed with earlier in cases of slow, than in those of rapid, development. If loose membrane exist below the tube, which is indicated by a flapping sound, with a somewhat eroupy character to the cough, it should be left in its position until this has had time to dissolve and disappear.

The tube should be removed whenever urgent secondary dyspnoea occurs,

as it is often difficult to say whether the obstruction is in the tube, or lower down. A fair respiratory murmur, or numerous râles, over the posterior portion of the lungs is the best evidence that there is no serious obstruction in the tube, one-half the calibre of which is sufficient for comfortable breathing.

He details as follows the dangers which his experience has shown him to be associated with the operation.

1. The first accident liable to happen is apnoea from prolonged efforts at introduction. There is very little danger of this if the time occupied in such attempts be not more than ten to fifteen seconds.

2. The anxiety to succeed quickly will tempt the operator to use force, thereby running the risk of making a false passage.

3. Injury to the larynx in removing the tube by passing the extractor down on the outside of the latter, opening it widely and removing it with force.

4. The most serious of the unavoidable accidents liable to occur is pushing down membrane before the tube in sufficient quantity to produce asphyxia. This has happened several times on reinserting the tube, on account of secondary dyspnoea. But in the one hundred and thirty-six thus far operated on, this accident has occurred but once, and that quite recently, on the first introduction. The tube was immediately removed, when a cast of the trachea was expelled, and the dyspnoea still remaining, it was reinserted with complete relief.

5. Coughing out the tube before the stenosis has been permanently relieved is seldom attended with any danger, as the dyspnoea is usually relieved for several hours afterward.

6. Blocking up of the tube with masses of pseudo-membrane too large to pass through has happened in only two of his cases, and in each the tube filled with membrane was expelled. A case has recently been reported where death took place from this accident. Where masses of membrane are suspected to exist low down in the trachea, it would be safer to use a smaller tube than the one indicated by the scale of years, as this would be more readily expelled if occluded.

7. The lumen of the tube is sometimes slowly but seriously encroached upon by adhesion of the tenacious secretions in those cases of croup which are called dry, particularly if there is very little cough. In such cases the tube must be renewed for the purpose of cleaning.

Those patients that cough the most, provided they get sufficient sleep, as a rule do the best.

If vomiting occur while attempting to insert or remove the tube, which seldom happens except as the result of recently administered emetics, the operation should be suspended and the gag removed to avoid the danger of some of the contents of the stomach entering the air-passages.

THE SURGICAL TREATMENT OF GOITRE.

DR. FRANCESCO FOLINEA, in *La Medicina Contemporanea* for June, July, and August, 1887, has given an elaborate review of the various methods of treatment of goitre, classifying them according to the character of the tumor—cystic, parenchymatous, or solid—and as to their intent, whether palliative or radical. In cystic goitre he describes the method of puncture and incision,

but calls attention to the instances described by Billroth and others, in which this has been followed by intense inflammation, and even by death. He alludes, however, to the interesting case of Ollier, in which a single puncture in a voluminous vascular goitre, with retrosternal prolongation, was followed by cure, the operation having been undertaken to palliate grave compression symptoms. In parenchymatous goitre, as in cystitic, he divides the procedure into two groups: 1, those intended to produce inflammation—electro-punctures and irritating injections; 2, those causing suppuration—setons and caustics. He decidedly prefers the former group, and gives the very favorable statistics of Bertiu, Leveque, Mackenzie, and others, the three mentioned, in 135 cases, having cured 102, and improved 21. The still more radical methods, subcutaneous ligation, galvano-cautery, extirpation, and the knife are described in detail. The article is the most comprehensive which has recently appeared on this subject, and shows great research. His general conclusion is that the operations upon the thyroid are among those which, in the relief they have afforded to suffering patients, should be included among the most valuable advances of modern surgery.

DR. ENRICO MARCONI (*Lo Sperimentale*, November, 1887) records a case of attempted extirpation of a vascular goitre, in which the patient was at the point of death upon the table from previous hemorrhage, in spite of ligation of the thyroids and of all accessible veins, and the operation had to be suddenly completed by detaching, with the finger-nail, enough of the tumor at the base to form a sort of pedicle, around which a strong ligature was thrown. The hemorrhage ceased at once, and the patient made a good recovery.

RETRO-STERNAL ABSCESS WITH RESECTION OF THE MANUBRIUM.

DR. J. V. RUSTIZKY reports (*Deutsche Zeitschrift für Chirurgie*, Nov. 30, 1887) the case of a man, twenty-three years of age, who, after caries of the lower jaw, had dissecting abscesses of the neck culminating in a post-sternal abscess. This was opened through an incision in the jugular fossa, washed out and drained. A month later the manubrium and upper half of the sternal body were removed and the patient made a rapid recovery.

[We have recently had in our own practice a case which presented the following interesting points:

An insane patient, male, aged thirty-five, injured himself by persistently knocking his elbows against the walls of his room, causing suppuration of the bursæ with caries of one olecranon, necessitating its removal. About the same time he produced an extensive slough of one index finger by tightly encircling it with a cord. A little later, being already greatly emaciated and rapidly sinking under his brain disease, he developed symptoms of dyspnoea. Extensive percussion dulness at the sternal region was then discovered, and almost immediately afterward a displacement of the upper sternal segment backward occurred from rapid destruction of the sternoclavicular and costo-sternal articulations. Coincidentally there appeared extremely copious purulent expectoration, the dulness diminished, and the skin over the whole sternum became emphysematous, forming a prominent tumor varying in size and tension with the movements of respiration and of

coughing. It was evident that perforation of a bronchus had occurred, and that the abscess had evacuated itself in this manner. The patient's general condition precluded any operative interference, the whole process having taken place with remarkable rapidity. Death soon followed, and the autopsy confirmed the diagnosis as above stated.—ED.]

GANGRENOUS ABSCESS OF THE LUNG; PUNCTURE; DRAINAGE; RECOVERY.

DR. WILLIAM STRANGE reports (*Brit. Med. Journ.*, Nov. 26, 1887) the case of a robust woman aged twenty-three years, who, immediately after the extraction of several stumps of carious teeth, developed an irritative cough, which became incessant. In the course of six months she developed a large pulmonary abscess, with enormous putrid offensive expectoration. As she was at the point of death from hectic, it was decided to evacuate and drain the abscess. An aspirator needle was pushed into the chest just below the ninth rib and one inch behind the axillary line. A drop of pus appeared. A large curved trocar, nine inches in length, was thrust in its track to a depth of about eight inches in an upward and forward direction toward the fifth interspace in front; large quantities of stinking pus were discharged. A drainage tube was pushed in through the canula, and the latter withdrawn. There was no bleeding. She improved at once, and fifty-five days later was discharged cured. The absence of bleeding and of effusion of air or pus into the pleural cavity, he explains by the resiliency of the healthy portion of the lung and the pressure exerted by the close fitting piece of tubing.

Two cases of gangrenous abscess of the lung were reported in March, 1886, to the Royal Med.-Chir. Society by Dr. C. T. Williams and Mr. Godlee. They were both cases of bronchiectasis, treated by incision and drainage, the indications for operation being the limitation of the disease to one lung, its situation in the lower lobe, and the adherent pleura.

SURGERY OF THE KIDNEYS.

MR. RICKMAN J. GODLEE, in *The Practitioner* for October and November, 1887, records a series of cases of renal calculus with special reference to their bearing upon symptomatology and prognosis. He recalls Thornton's assertion that all the symptoms of stone in one kidney may be caused by the presence of a stone in that of the opposite side, which has been verified in several cases by operation. Mr. Godlee had recently, for right renal colic, twice exposed the right kidney, the second time incising it and exploring it thoroughly, without finding stone; seven weeks later one was passed *per vias naturales*, and at the date of writing the man was laid up with *left* renal colic. These cases would seem to justify the preference shown by some surgeons, notably the gynecologists (Tait, Thornton, and others), for the abdominal over the lumbar incisions in renal surgery as admitting exploration of *both* kidneys.

Mr. Godlee calls attention to the tolerance of stone by many kidneys and to the bearing of this fact on the advice given as to nephrolithotomy or nephrectomy. In one of his cases, after consultation with Sir William Jenner, an exploratory operation was recommended in a case of pyelitis with

large nodular renal tumor with symptoms of stone. It was refused, and two years later the urine was nearly or quite clear and the patient well.

While he thinks that a small clean cut into a comparatively healthy kidney or pelvis (one large enough for digital exploration) is almost sure not to leave a permanent urinary fistula, he believes it more important to ascertain the prospect of healing when a free incision is made into an old suppurating kidney. In one of his cases the fistula closed after three years, the patient having declined nephrectomy. In another, a case of nephrotomy, the same result followed after five years, the patient having been too weak at the time of operation to permit of removal of the kidney.

The practical point illustrated is the possibility of closure of fistulous openings into chronically suppurating kidneys. Mr. Godlee thinks the chief dangers of nephrectomy are, first, shock, then loss of blood; the former being severe in proportion to the amount of adhesion of the tumor to surrounding parts. Roughly speaking, therefore, the danger of a nephrectomy may be measured by the time occupied by the operation. He advocates nephrolithotomy or nephrotomy with drainage as preliminary to nephrectomy, and gives an interesting case.

MR. FREDERICK TREVES reports (*Lancet*, September 24, 1887) a case of removal of the kidney and of both ovaries. He gives the following diagnostic characters as, in his opinion, of most value in renal growths: 1. The tumor occupies the line between the ilium and the last rib. 2. It is everywhere rounded. 3. There is percussion dullness between the tumor and the spine. 4. It is usually possible to make out the lower limit of the tumor. 5. It does not descend on inspiration. 6. It has the colon in front. 7. If innocent, it will not cause lumbar bulging. Cancer of the kidney may and abscess, if large, certainly will cause such bulging. These features existed in Mr. Treves's case, except that the lower extremity of the tumor could not be well defined, and there was no resonant bowel in front of it. There was a movable cord, dull, and about the width of the thumb, which proved to be an empty, contracted, descending colon. The fact that the tumor fluctuated in size, and that the patient occasionally passed large quantities of urine, indicated hydronephrosis. Laparotomy was performed; multilocular cysts of both ovaries were found and removed, together with a hydronephrotic kidney. The patient recovered.

DR. EDWARD O. OTIS, after a review (*Boston Med. and Surg. Journal*, Oct. 13 and 20, 1887) of 98 cases of kidney injury with 50 deaths (or a mortality of 51.02 per cent.), concludes that after indirect means have been tried, local cold, opium, internal astringents, etc. (and their value is very doubtful), if hæmaturia continues with increasing anæmia and collapse and swelling in the loin, operative interference by means preferably of a lumbar incision is demanded. If the hemorrhage has ceased, peritonitis, extravasation, suppuration, or pyonephrosis may still necessitate operation. As to formal operations on diseased kidneys, he assents to Simon's very general rule that where there is a reasonable belief that one kidney is healthy and that the other is the seat of advanced and irremediable disease, its extirpation is justifiable. He quotes GUTERBOCK to the effect that peritonitis and septic peritonitis are unknown after the lumbar operation, while pyæmia and septicæmia are more frequent than after abdominal section. In a large number of cases of

nephrectomy done by the lumbar incision, the average mortality was 31.48 per cent.; by the abdominal incision, 54.44 per cent. After nephrolithotomy the percentage of deaths was 13.75. In 27 recent cases of kidney injury (1879 to 1887), there were 11 recoveries and 16 deaths.

DR. A. ALSBERG reports (*Deutsche med. Woch.*, October 6, 1887) a case of malignant tumor of the kidney in a five years old child, diagnosed by the hæmaturia and the lumbar tumor. The operation was done through Langenbuch's incision; the tumor, on account of its size and adhesions, was removed piecemeal. The child recovered, the wound healed, and at the end of two months no symptoms were noticeable; but the child subsequently died of recurrence in the liver and lungs. Alsberg believes that nephrectomy should be performed in malignant growths in children when the tumor is not of excessive size, is growing rapidly, and the patient is fairly strong.

In this journal for October of last year, DR. LONGSTREET TAYLOR, after a careful review of all obtainable statistics, expresses himself as decidedly in favor of operation, and thinks that if made when the tumor is still small its results in the percentage of permanent recoveries will compare very favorably with those of malignant degeneration of other organs.

SYPHILITIC DACTYLITIS.

DR. F. ESCHLE, after a review of a number of cases of this affection (*Archiv für klin. Chirurgie*, vol. xxxvi.), concludes that gummatous growths in the medulla and periosteum, as well as gummata of the neighboring soft parts, are included under this title; that in children the osteomyelitic, and in adults the periosteal form is most common; that it affects especially the poorly nourished, scrofulous, and tuberculous syphilitics, and that traumatism is of minor importance; and finally, that it should not be regarded as an unimportant local affection, but, both on account of its stubbornness, and the consequent danger to the affected member, and because it often indicates a severe form of syphilis, should be carefully observed and studied.

RESECTION OF THE WRIST-JOINT.

M. GANGOLPHE reports (*Revue de Chirurgie*, September 10, 1887) fifteen cases of resection of the wrist for fungous osteo-arthritis, in which the results were so good that he claims a wider field of usefulness for this operation than has hitherto been accorded it. The fungous mass is removed, the surface touched with a red-hot iron, the wound dressed with iodoform gauze, and a plaster-of-Paris splint applied at once. In children, under twelve years, scraping and the use of the cautery meet the indications. Profound cachexia, persistent fever, or pulmonary tubercle, will make amputation the preferable operation.

SUBPERIOSTEAL CUNEIFORM RESECTION OF THE TIBIA.

DR. A. HUBERT reports (*Archivio di Ortopedia*, Fasc. 3d and 4th, 1887) a case of excessive angular deformity of the tibia following a fracture, in a rachitic child, the dressings having been permanently removed. The calf muscles were shortened and a pseudo-arthritis had formed. The callus was removed by the method of MacEwen, by a "series" of osteotomies or suc-

cessive resections until the limb could be brought into good position, tenotomy of the tendo-Achillis being first performed. The result was an admirable one in spite of the rachitic tendencies of the eleven years old patient.

EARLY ASTRAGALOTOMY IN FUNGOUS SYNOVITIS OF THE TIBIO-TARSAL JOINT.

DR. R. GRITTI (*Achivio di Ortopedia*, Fase. 3d and 4th, 1887) makes a strong plea for early operation in those cases of tibio-tarsal disease often associated with infected wounds, sometimes with the exanthemata, which, beginning with high fever, severe pain, and marked swelling, run on rapidly to the formation of intra-articular abscesses, and menace, not only the affected articulation, but the life of the patient. As they almost always go on at any rate to caries, and to synovial and osseous disintegration, Dr. Gritti thinks that early astragalotomy should be performed, and possibly a little prematurely rather than that the risk of a fatal result should be taken. He tabulates ten cases occurring in his own practice since April, 1886. Of these, one died of œdema of the brain, with symptoms of cerebral compression; six were completely cured in from two to four months; two were in course of healing at the time of report; and one had disappeared when almost well. He exposes the astragalus and its articulations by a vertical incision upon the posterior border of the fibula, continued forward from the point of that bone and ending above or a little in advance of the metatarso-cuboid joint. He removes diseased bone and unhealthy granulations, makes a counter-opening on the inner side of the foot, inserts a drainage tube, sutures with catgut, dresses antiseptically, and immobilizes the joint.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

L. WEBSTER FOX, M.D.,

OPHTHALMIC SURGEON TO THE GERMANTOWN HOSPITAL, PHILADELPHIA.

STRABISMUS OPERATIONS.

DR. MAZZA (*Trans. Italian Ophthalmological Society*, 1887) in operations for strabismus adopts the method of advancing one muscle and backing its antagonist. He, like Landolt and Abadie, thinks that when strabismus does not originate from a recent paralysis, it lies in one eye only, which is usually amblyopic; and if the convergence is above fifteen degrees, it is better to perform a tenotomy of the shortened muscle and an advancement of its antagonist.

The reviewer had the satisfaction of noting a confirmation of the above operation at the hands of de Wecker, in Paris, quite recently.

THE EXAMINATION OF COLOR-BLINDNESS IN RAILWAY EMPLOYÉS.

DR. PETTROELLI (*Annales d'Oculistique*, Nov. 1887) is convinced that Holmgren's scale is deficient—

1. Because it lacks one of the principal colors—orange.
2. Because in two consecutive shades of the same color, one, and then the other, is lighter.
3. Because the examination is long and difficult.

M. Petroelli has had an apparatus constructed composed of 104 wooden balls covered by wools of different colors. To the 100 colored wools of Holmgren, Petroelli has added four shades of orange, besides 6 cubes with 36 shades of color.

RARE CASES OF NYSTAGMUS.

In *Knapp's Archives* for September, 1887, DR. F. E. D'ENCH reports two cases of vertical nystagmus. The rare occurrence of such cases makes them of peculiar interest. In Case I. subjectively the right eye was affected only, but when both were examined with the ophthalmoscope they were more or less affected. Upon strong convergence, the oscillations ceased, rather proving that excess of convergence plus accommodation overcame the resisting force of superior and inferior recti muscles, holding the eyes stationary. Our author does not think that the existing astigmatism bore any relation to the development of the nystagmus, but that the centres of coördination governing the movements of the eyeballs were disturbed. The absence of microscopical data relative to such cases leaves us somewhat in doubt as to the exact pathological condition of the nuclei of their nerve centres.

HYPOPYON AND DENTAL CARIES.

Every ophthalmologist knows the relations existing between ocular affections and dental lesions. This question was discussed first by Wenzel in 1808, Beer in 1877, more recently by Desmarres, Haneock, Galezowski, and others.

DR. BRUNSCHWIG, in *Receuil d'Ophthalmologie*, 1887, quotes two cases where hypopyon was superinduced by caries of the teeth. Our author calls attention to the fact that often the dental system is overlooked in obstinate ocular troubles. Moreover, the connections between the two systems—the ocular and the dental—are so numerous that it is not surprising to find this sympathy existing, the innervation being from the same origin. In obstinate cases of conjunctivitis, keratitis, paralysis, and certain kinds of amblyopia, the teeth should be examined carefully.

ESERINE IN DETACHMENT OF THE RETINA.

In a preliminary communication to the Royal Academy of Sienne, DR. GUAITA (*Bollettino d'Oculista*, Anno ix., No. 14) reported successful treatment of five cases of retinal detachment by eserine. Several months before this communication was made Dr. Guaita made several instillations of atropia in the eye of an individual suffering with detachment, for class demonstration. He noticed that under several instillations of the drug, the patient grew worse. This suggested an idea—as eserine has the property of regulating the

endocular circulation and the filtration of the fluids of the eye, and rapidly promoting the reabsorption, as well as the evacuation of serous exudations, it must also be efficacious against a disease characterized by the presence of a serous exudation between the retina and the choroid.

In an additional note published in the *Bollettino d'Oculistica*, No. 15, 1887, Guaita states that he had learned by the reports of the International Congress at Milan, that Professor Secondi made daily instillations of eserine after iridectomy, which he performs in retinal separation. Other ophthalmic surgeons follow Secondi's treatment with a certain quota of success. Eserine, which diminishes ocular tension in glaucoma, ought to be contraindicated in a disease where the tension is lessened. But Guaita remarks that eserine does not diminish the normal tension of an eye, although it does diminish the abnormal tension of a glaucomatous one.

According to such authorities as Warlomont, Dransart, Castorini, there is some analogy between glaucoma and detachment of the retina: glaucoma in its most advanced stages ends in complete detachment, and *vice versa*, detachment of the retina may bring on glaucomatous attacks, in either disease there is an abnormal amount of liquid in the eye, abnormal as to quantity in glaucoma and as to quality in detachment. Moreover the iridectomy which cures glaucoma is sometimes useful in retinal detachment.

Eserine must be applied constantly, methodically, and in large doses—grs. iv to $\frac{5}{j}$, four times daily. Probably the few good results obtained by the internal administration of pilocarpine in cases of retinal separation, depend upon the elimination of the exudative products posterior to the retina.

RETINITIS BRIGHTII WITHOUT ALBUMINURIA.

C. GAND details his observations in a thesis, Paris, 1887, and gives conclusive proofs that the retinitis of Bright's disease with its special and distinctive features, has appeared several weeks, even several months before the positive symptoms of Bright's disease became manifest.

ON THE EXTRACTION OF THE ANTERIOR CAPSULE IN CATARACT OPERATIONS.

DE WEECKER, of Paris (*Recueil d'Ophthalmologie*, 1887), has devised a forceps with which he tears away as much of the anterior capsule of the lens as is possible to grasp.

The following deductions have been made from his experiments in a large number of operations by Peignon:

1. In the ordinary senile cataract the extraction of a shred or strip of the anterior capsule, with the cystitome forceps, is advantageously substituted for the dissection of the capsule by the cystitome.

2. This procedure does not offer any danger in regard to the rupture of the zonula of Zinn or luxation of the lens.

3. Whenever there are capsular plates or a marked thickening of the capsule, it is preferable to make the equatorial dissection, and in order to facilitate it an iridectomy (de Wecker is at present performing all cataract operations without iridectomy), and then remove the whole anterior capsule.

4. The partial or total tearing away or extracting the anterior capsule is the best guarantee against recurrent capsular cataract and capsular incarcerations which may appear after operations.

ON CATARACT OPERATIONS.

PROF. JACOBSON, of Königsburg (*Recueil d'Ophthalmologie*, 1887), is one of the few operators who still abides by the typical linear extraction. For the last three years he has exercised, as far as possible, the fullest antiseptic precautions, since then he has had no corneal abscesses or bad results. As to the comparison between the two operations, that known as the Graefe cut and that of Daviel, Prof. Jacobson states that an operation is described to-day under the name of Daviel, which, if he (Daviel) returned to life would not recognize as his own. It would be nearer the operation known to-day as the Graefe linear extraction. We are inclined to believe our author in error as to this point, as Daviel's incision was made through the lower section of the cornea.

REMOVAL OF PTERYGIUM.

DR. FIORE (*Annales d'Oculistique*, November, 1887) performs the following operation for the removal of pterygium. After having detached it from point to base, he pierces its centre with a curved needle threaded with a double piece of aseptic silk; he then snips the thread close to the middle so that the base of the pterygium is traversed by a double thread, held by an assistant, who draws the detached pterygium toward the nose, which enables the operator to separate the conjunctiva and subjacent tissues with more facility. The conjunctiva is then brought in juxtaposition by three sutures. The double ligature is then tied—i. e., the upper thread knotted around the base of the pterygium, the lower thread in like manner around its lower half, after which the pterygium is cut close to these two threads and the operation is complete.

Excision is not advised, although Fiore has not had recurrent growths. Transplantation is by far the better method, which consists simply in dissecting, or, still better, peeling the pterygium from the cornea (Prince's method) with a strabismus hook, after which a pocket is made by separating the conjunctiva from the eyeball, into which the pterygium is transplanted, and held in place by sutures; the conjunctiva is then brought together by three sutures—as cicatricial contraction takes place the pterygium entirely disappears.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

ON THE CAUSES WHICH PREVENT REMOVAL OF THE TUBE IN CHILDREN TRACHEOTOMIZED FOR DIPHTHERIA.

DR. KÖHL, of Zurich (Inaugural Dissertation, Berlin, 1887, reprinted in Langenbeck's *Archiv*, 1887, p. 149, and abstracted in *Journ. for Laryngology and Rhinology*, Oct. 1887, p. 366), narrates the following causes: 1, prolonged

diphtheria; 2, relapsing diphtheria; 3, choroiditis inferior; 4, granulation stenosis; 5, curvation of the tracheal wall; 6, relapse of the anterior tracheal wall; 7, compression stenosis; 8, cicatricial stenosis; 9, primary and secondary paralyses; 10, paresis from habit; 11, moral influence; and 12, spasm of the glottis: some of these causes being occasionally combined. The essay is stated to review the literature of this subject very completely, supplemented with some original cases.

THE TRANSFORMATION OF LARYNGEAL PAPILLOMA INTO CARCINOMA.

PROF. KARL STOERK, of Vienna, now perhaps the senior laryngoscopist in Europe, has recently published two important articles, one on transformation of papilloma of the larynx into carcinoma, and the other on extirpation of the larynx for carcinoma, with the history of a successful case of his own. (*Wien. med. Woch.*, Dec. 3, 10, 1887.)

Stoerk has seen the majority of the cases of malignant growths of the larynx operated upon in Vienna during the past fifteen years, has watched their course, has advised their submission to operation at the hands of Billroth, and has assisted in the operations and in the after-treatment. According to his experience, the presence of a papilloma in the larynx determines a congestive condition which extends into the papillary bodies, which excites a catarrh of the tissues far more deeply seated and more irritating than ordinary catarrh, and with which an excessive proliferation of the epithelium is associated far exceeding that produced by any other disease. Papilloma, he thinks, should be regarded as a special disease of the epithelial tissue. One is astounded, he informs us, at a first view under the microscope, with the immense amount of epithelial proliferation surrounding the walls of the smallest so-called catarrhal ulcer. With tuberculous ulcers this proliferation is still greater, and it is greatest with papillomas. It consists of very spare connective tissue serving only as a scaffold upon which papilloma pegs upon pegs accumulate. Such papillomas, even when they embrace the entire mucous membrane, may exist a whole lifetime without especially endangering the existence of the patient. Stoerk has seen individuals who have suffered for twenty-five years with papillomas and their recurrences.

In other cases peculiar changes occur after the lapse of years. The isolated peg formations gradually fade away. The papilloma loses more and more of its mobility and becomes more sessile the older it becomes. The secondary and tertiary outgrowths undergo attenuation and spontaneous detachment. The succulence of the papilloma ceases, and at its base the isolated portions undergo agglomeration and can be distinguished upon the surface as isolated dendritic outgrowths. Soon, however, the links at the base can no longer be recognized, and the consistence of the growth becomes changed and its mobility diminished. It hardens gradually into a fibrous tumor, redder, darker, and more copiously supplied with vessels. This darkening of the papilloma is an accurate pathognomonic indication that transformation is taking place. The next stage of development is one characteristically common in all carcinomas. The tumor is no longer movable on its base; it is, to use the expressive phrase of Waldeyer, "as though fastened to its supports with bolts."

The normal proliferation outward having ceased, the proliferation of epi-

thelium is driven into the tissues, first into all the normal interstices of the connective tissue, then between the fibrillæ of the muscles and into the walls of the vessels. The moment that but a minimum remains of the original tissue, that process is completed which may be designated as the metamorphosis of papilloma into carcinoma. The infiltration of the muscles, vessels, and nerves produces an important disturbance of their functions, and there is a total change in the biological relations of the neoplasm. The further the epithelial infiltration extends, the slighter becomes the vitality of the tissues, and an intense reaction occurs in the immediate neighborhood, an eliminating reaction it may be supposed, which can be most readily observed in well isolated pharyngeal or laryngeal carcinoma in which such remarkable vascular injection is visible around the infiltrated nodules that their expulsion or ulceration may be expected every moment. Only in the characteristically disturbed relations between the reactionary process in the neighborhood and the rapid increase of the epithelial proliferation, can it be realized that the seat of the reactionary process in still relatively sound tissue may in the shortest time undergo infiltration, that is to say, may become changed into carcinomatous nodules.

As to the treatment of papilloma, Stoerk has long ago been assured that the best method is that which does not subject the diseased larynx to any great irritation. Endeavor must be made to remove papillomas to reëstablish respiration and phonation, but no irritating applications must be made to the seat of implantation. These are likely to encourage recurrences. Multiple papillomas are not dangerous. Those which are isolated are less favorable. Such growths, recurring in the same place a year or two after careful removal are usually associated with a predisposition to a later change into carcinoma. Their pegs proliferate so in length that the secondary pegs point and tilt and wave about, so that they become detached from time to time as they shoot out too far. They are coughed out without any special hemorrhage or painful sensation. This spontaneous detachment ceases after a series of years. No more secondary proliferations take place, and the growth, which up to this time has been pyramidal, becomes more spherical.

Hitherto the surface of the papilloma appeared rather white or pale red, uneven and dendritic, but now it becomes rounded off, and though not smooth is covered with small lumps and usually has a grayish-white feltish tunic, which is an indication that the normal papillary process has subsided. This tunic gradually changes into a dense dry one. The growth may remain long in this condition. It looks dry, it feels dry to the probe. The papilloma grows no more in height; it becomes larger at its base. It is changing into a malignant growth. Such a growth should not be attacked by any endolaryngeal method. Even the exsection of portions for microscopic purposes may be followed by increased growth; while if let alone its extension may remain circumscribed for a long time, often for years without marrying the chances of success in a radical operation.

As to the subjective manifestations of a papilloma transformed into epithelioma, they assist chiefly in disturbances of phonation, less frequently in those of glutition. Pain and hemorrhage are not frequent. Once, however, that inefficient topical measures are instituted, hemorrhage ensues, with extensive proliferations in height and breadth which produce dysphagia, dys-

phonia, and pain. A papilloma may occupy a vocal band for years without interfering with its muscular functions, the disturbance in phonation being mechanical and due to the position occupied by the growth. In general, neither phonation nor respiration suffers complete disturbance. As soon, however, as the papilloma has undergone the changes described, the muscular apparatus becomes impaired. This immobility is a pathognomonic indication of the change of a benign neoplasm into carcinoma.

Stoerk describes in detail a case which he had watched for fourteen years, and in which finally he removed the cartilaginous portion of the larynx, leaving the pharyngo-laryngeal enveloping tissue intact and so stitched as to form a wall in front of the œsophagus and thus favor glutition. This operation, undertaken in January, 1885, has been a complete success with full restoration of respiration and phonation; the latter by the action of the muscular apparatus in forming a sort of sphincter at the upper portion of the larynx and its subsequent longitudinal elongation into phonatory pads resembling the ventricular bands. This case is remarkable in many respects and the reader must be referred to the original for the interesting details.

LARYNGECTOMY.

A. SALOMONI, in a monograph (*Della estirpazione totale della laringe*, Cremona, 1886, pp. 99, and bibliography vii.) noted in the *Centralblatt f. Chir.* of September 17, 1887, p. 704, tabulates 104 cases of total extirpations and 24 partial extirpations, and gives the history of the third case operated upon by Dr. Bottini. Male, aged fifty-three; sarcoma; tracheotomy some days before laryngeotomy. Some trouble in isolating the larynx. Trendelenburg's canula unsatisfactory, producing so much cough as to compel its withdrawal. The larynx was then rapidly split open, the two halves were excised, and the entrance of blood prevented by placing a sponge over the cricoid cartilage, which was drawn forward. Death on the third day by bronchopneumonia.

Salomoni's researches show that the immediate mortality has been 43.6 per cent. in carcinomas, and 16.6 per cent. in sarcomas. In recoveries from the operation in cases of carcinoma limited to the larynx, the minimum duration of life has been one year, the maximum eight years, and the average five years. In carcinoma extended beyond the larynx, the corresponding figures are nine months, five years, and three years. Erosion of cartilage is a more unfavorable indication than glandular infiltration. Of 5 cases of sarcoma, 1 was living at the end of five years, and 1 at the end of twelve years. Recurrence of carcinoma occurred in 28 cases; and did not take place in 19, in 2 of which two years had elapsed, and in 6 eighteen months. This valuable monograph discusses the entire subject: history, indications, anatomy, and operative procedures.

THE ULTIMATE RESULTS OF EXTIRPATION OF THE LARYNX FOR CARCINOMA.

In a lecture delivered November 16th in the Berliner Medicinischen Gesellschaft (*Berliner klin. Woch.*, December 4, 1887, p. 919) DR. EUGENE HAHN communicated the results of his fifteen extirpations of the larynx, partial and complete, for carcinoma, and exhibited several of the specimens. Two of these

fifteen are to be regarded as cured, both males; one operated upon seven years ago for an extensive keratoid carcinoma at the age of sixty-nine years and losing nearly his entire larynx, namely, the cricoid cartilage, one-half the thyroid cartilage, and a great portion of the other half, a portion of the hyoid bone and the epiglottis. This patient is completely well. He wears a canula, can make himself understood, and has enjoyed good general health ever since the operation. The other case, which may be regarded as cured, was a patient of DR. FELIX SEMON, of London, who requested Hahn to perform unilateral exsection. The disease was unusually circumscribed. A microscopic section from the specimen is unusually characteristic.

Except these two cases, not one has remained definitively benefited. One patient is perhaps yet living, but the latest report of his condition indicated a recurrence. This result is not brilliant and may be due to the fact that the operations were usually made late in the disease, as can be seen in the twelve preparations exhibited. In no other case had Hahn had an opportunity to operate at so early a date as in Semon's case.

One case, the youngest in the series, was operated upon unilaterally, the day of the lecture, at thirty-six years of age, the specimen from which was exhibited. Another specimen was from a patient upon whom Hahn had operated nine times within eighteen months for recurrences, these being always local, no lymphatic infiltration being found even at the autopsy.

In his monograph on extirpation of the larynx (1885) Hahn mentioned that, in many instances, he had found that the lymphatic glands became diseased unusually late in laryngeal carcinoma. He further believes that the carcinomas with cornifying tendencies, the so-called keratoid carcinoma, offer a far more favorable prognosis than the other forms, especially the soft ones, as is always the case in other portions of the body. The two patients cured had keratoid carcinoma. Hahn believes, therefore, that it will be of great importance for the operation in future to determine whether a carcinoma shows great tendency to cornification of its cells. These cases should, under all circumstances, be submitted to operation as early as possible. When, on the contrary, the case is one of soft, so-called infiltrating carcinoma, which shows a great disposition to disintegration, and where perhaps the soft parts surrounding the larynx are already invaded, as could be seen in an entire series of the preparations exhibited, then he believes the surgeon will do better to abandon the operation and limit his interference to tracheotomy, when demanded by want of breath.

MORBID GROWTHS OF THE LARYNX.

DR. G. HUNTER MACKENZIE reports (*Edinb. Med. Journ.*, December, 1887, p. 502) a "Case of Thyrotomy for Recurrent Growths in the Larynx; with Remarks." To remove a rather rapidly growing papillary growth blocking up more than one-third of the glottis anteriorly and producing dyspnoea, the larynx was split externally, the growth was removed and its seat of attachment was cauterized with solid silver nitrate. This cauterization failed to repress repullulation, and in less than three months the larynx was again divided to remove the growths which "had recurred, apparently more luxuriant than ever." This time the bone was freely and deeply cauterized with

the thermocautery. This cauterization was efficient, there being no trace of recurrence fully two years later, although a fresh growth had appeared upon the posterior third of the left vocal band. Meanwhile, too, a similar growth has appeared on the mucous membrane of the hard palate immediately behind the incisor teeth.

In his remarks upon the case, Dr. Mackenzie mentions immobility or impaired motility of a vocal band as rather diagnostic of malignant disease, owing to the deeper and more diffuse situation of the disease. Nevertheless, growths of the benignant character histologically sometimes produce the very same effect upon the mobility of the vocal band when they are located at a distance from the margin, or when they are located in the ventricle or on the ventricular band. The writer has had under his care for several years a lad, wearing a tracheal canula, in whom he had twice had occasion to repeat an external operation for recurrent warty growths, and in whom this effect upon the motility of the affected vocal band, as usual, the left one, has been as marked as in any case of malignant growth.

OBSTETRICS.

UNDER THE CHARGE OF
EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA.

THE PATHOLOGY AND TREATMENT OF ABORTION.

DÜHRSEN, of Berlin, in the *Archiv für Gynäkologie*, Band 31, Heft 2, concludes, in an extended article, that the retention of a portion of the decidua vera after abortion is the rule, not the exception. From the study of microscopic preparations of the tissues involved, Dührssen believes that the decidua vera in spontaneous abortion separates from the uterus in the deeper layer of the glandular tissue. When uterine contractions begin the placental attachment of the embryo and then the decidua vera are separated from the uterine wall, proceeding from above downward. His microscopic studies have also demonstrated that the curette separates the decidua vera in the same portion and to the same depth in the uterine tissue that occurs in normal expulsion.

In his treatment of these cases he believes, therefore, that the curette is to be preferred in the first two months of pregnancy. In the third month he removes the embryo and decidua serotina and reflexa by the finger, and cures the decidua vera. In the subsequent months he combines the insertion of two fingers or the hand, if needed, with the fixation of the uterus by the other hand. Curetting, the iodoform tampon, and hot antiseptic douches, are always in reserve. While recognizing the fact that after the expulsion of the embryo, nature will often expel at various intervals fragments of placenta and decidua without harm, yet Dührssen believes that when the cervix will

admit the finger the removal should be completed. He has treated, on these principles, one hundred and twenty-two cases, of whom two died.

OCCIPITO-POSTERIOR POSITIONS.

QUEIREL, of Marseilles, has studied the cases of occipito-posterior position occurring in the Marseilles Maternity during ten years' time. The total number of vertex presentations was 2553, in which the occiput was turned posteriorly 575 times. In these 575 cases, rotation failed in 23, in 3 of which forceps were used; 8 of these patients delivered themselves without interference of any sort.

Queirel considers the causes of occipito-posterior positions to be the failure of the head to flex; faulty transmission of force through the child's body by reason of lack of flexion, and also an especial configuration of the pelvis. He observed in his cases an obliquity of the pelvis resembling that described by Naegle, but lacking the ankylosis at the sacro-iliac joint. The deformity which he observed consists in a prominent sacro-vertebral angle, deflected to one or the other side. The accommodation of the head to this deformity causes, he believes, occipito-posterior position. He illustrates his views by the report of a fatal case, with post-mortem examination of the pelvis.—*Nouvelles Archives d'Obstétrique et de Gynécologie*, 1887, No. 10.

POST-MORTEM PARTURITION.

Surgeon-Major WRIGHT, in the *Indian Medical Gazette* for October, 1887, reports the case of a Hindoo woman who fell into a well, her body not being found for three days. At some period between three and three and a half days after death, the formation of gases of decomposition produced the expulsion of a full-grown fœtus and its appendages, inverting the uterus and rupturing the perineum from vagina to rectum. The case is interesting, because post-mortem emptying of the uterus often follows attempted fœticide. In the present case there was no evidence of such a crime.

A SUCCESSFUL LAPARO-ELYTROTOMY FOR CONTRACTED PELVIS.

In the *New York Medical Journal* of December 10, 1887, DR. MCKIM reports the case of a primipara, aged sixteen, who had suffered from hip-joint disease; the conjugate of the pelvic brim was less than three inches; the pelvis was generally contracted. After efforts at delivery by the forceps had been continued for over two hours, craniotomy was proposed and refused by the attendant priest. After labor had been in progress for twenty-nine hours, and eight attacks of convulsions had increased her dangers, laparo-elytrotomy was proposed and accepted.

The operation was performed under most unfavorable circumstances of filth, lack of light, and all hygienic appliances. The usual incision was made on the right side. So firmly was the head pressed upon the pelvic brim, that instruments could be passed into the bladder only with great difficulty, to determine its position. The vagina was opened with scissors, and the aperture enlarged. The child was delivered with forceps, and was stillborn; it weighed about eight pounds. The placenta was expelled by Credé's method.

Corrosive sublimate, 1 to 4000, was employed. Three rubber drains were passed from the vagina through the inguinal wound, and an iodoform gauze dressing was applied.

The patient survived septicæmia, and recovered after about four weeks. Her recovery was complicated by parotid abscess, sloughing of the wound, prolonged delirium, and the usual manifestations of sepsis. The treatment consisted essentially in the thorough irrigation of the wound, the uterus, and vagina with antiseptic solutions; the free use of milk with lime-water; peptonoids, alcoholics, and tincture of iron; the almost constant inhalation of oxygen for ten days, and, during the diarrhœa and sweating, the administration of lead acetate and aromatic sulphuric acid.

OPERATIVE TREATMENT OF EXTRAUTERINE PREGNANCY.

At a recent meeting of the Society of Physicians of Vienna, BREISKY reported the case of a woman, aged thirty years, who had given birth to a living child six years previous to her extrauterine conception. She suffered from peritonitis after confinement, and had never been free from pelvic pains. Extrauterine conception was followed by chronic peritonitis; foetal movements were perceived at five months, when the pains lessened. Breisky diagnosed intraligamentous, tubal pregnancy. On examination by palpation the uterus could be felt, lying in front of the tumor. By vaginal examination the true pelvis was found to be empty, the vagina drawn toward the left. The tumor was at the right of the uterus, the foetal parts could be outlined, and the heart-sounds heard.

The operation was performed at the end of eight months of pregnancy. After a central incision the foetal sac presented in the wound; it was stitched to the abdominal wall by four sutures; at its thinnest point an opening was made, and the child was rapidly extracted. It weighed over five pounds, was asphyxiated, but was promptly resuscitated. The four fixation sutures were then removed; the sac was drawn out, ligated at its junction with the uterus, and removed. Externally the adhesions were but partially broken up, as the sac was adherent to the intestines and omentum. The sac, placenta, and membranes were removed, and the wound drained and sutured. The mother recovered perfectly in three weeks.

The sac presented a considerable development of muscular tissue, and seemed mostly developed from the serosa; the placenta was large, and showed adherent lobules.

Three weeks after delivery the child died from inflammation of the umbilical vein, a termination not to be ascribed to the operation.

Breisky claims that this is the first case of the successful removal of the living foetus, with all its appendages, in extrauterine pregnancy. From the consideration of three cases previously operated upon by him, Breisky believes that in advanced cases of extrauterine pregnancy, when the foetus lives, we should extirpate the entire sac. To await the formation of a lithopædion is not admissible, as perforation of the bladder or intestine or septic infection may result.—*Wiener medizinische Presse*, No. 48, 1887.

A special meeting of the Obstetrical Society of London was recently held to discuss the treatment of extrauterine pregnancy in the later months of gestation.

HERMAN related a case in which he removed a dead fœtus per vaginam, washing out the cyst, the placenta escaping on the sixteenth day. The cyst finally closed completely. He had collected thirty-three cases in which an extrauterine gestation cyst had been emptied by the vagina, and from an examination of them he drew the following conclusions: 1. The operation of opening an extrauterine gestation sac by the vagina early in pregnancy, before rupture had taken place, by the cautery-knife or otherwise, is a dangerous and unscientific proceeding. Abdominal section ought always to be preferred to this. 2. Soon after rupture has taken place, when interference is called for to arrest hemorrhage, abdominal section is more likely to succeed than vaginal. 3. When rupture has taken place, and the effusion of blood is followed by pyrexia, the indications for incision of the vagina are the same as those in hæmatocele from any other cause. 4. At, or soon after, full term, before suppuration has taken place, there may be conditions which indicate delivery by the vagina as preferable to abdominal section. These are, 5, when the fœtus is presenting with the head, breech, or feet, so that it can be extracted without altering its position, and, 6, when it is quite certain, from the thinness of the structures separating the presenting part from the vaginal canal, that the placenta is not implanted on this part of the sac, and it is not certain that the placenta is not implanted on the anterior abdominal wall. 7. If the child cannot be delivered by the vagina without being turned, abdominal section should be performed. 8. No attempt should be made to remove the placenta. 9. The after-treatment should consist in frequent washing out of the sac. 10. After suppuration has taken place, the spontaneous opening of the sac into the vagina is one of the more favorable terminations.

In the discussion which followed, CHAMPNEYS reported a case in which, after laparotomy, the placenta was left, the patient dying from sepsis when the placenta separated, three months after the operation.

WILLIAMS reported a case of operation in the thirty-fifth week of gestation, with the delivery of a living child, and the recovery of the mother; the placenta was left behind. Peritonitis existed before the operation.

LAWSON TAIT believed that we need not fear hemorrhage with the appliances of modern surgery. He had removed a placenta, touched bleeding points with solid perchloride of iron, and recovery ensued. He believed that the placenta, if left behind, continues to grow; hence the destruction of the fœtus by electricity is useless, as the real source of danger, the placenta, remains.

KNOWSLEY THORNTON believed that blood effused in these cases is not absorbed; he did not consider the possibility of the placenta's being attached to the abdominal wall an alarming feature, in view of our means for checking hemorrhage.—*Lancet*, December 3, 1887.

THE TREATMENT OF RETENTION OF THE CHORION.

REIHLEN, of Stuttgart, in the *Archiv für Gynäkologie*, Band 31, Heft 1, contrasts the treatment of retention of the chorion by removal and by ex-

pectancy. By the expectant method 104 cases were treated, of whom 59 per cent. escaped fever during the puerperal state; 27 per cent. had mild fever, caused by absorption of septic matter; 14 per cent. had severe sepsis, 1 patient died. Of 48 cases, in whom the chorion was removed, 41 per cent. escaped fever; 46 per cent. had mild sepsis; 13 had severe sepsis, 1 patient died; the comparison is slightly in favor of the expectant plan.

Reihlen treats his cases as follows: Half an hour after the birth of the child, if the placenta and membranes are not expelled, he expresses them by Credé's method, removing the membranes from the vagina very carefully. If the chorion is retained no interference is attempted unless hemorrhage from uterine atony renders it necessary; then the membranes are removed antiseptically, and a hot intrantrine douche of three per cent. carbolic acid is given. When it is not necessary to remove the chorion for hemorrhage from uterine atony, the case is treated as indications demand; when fever occurs vaginal injections are first given; if the temperature is uninfluenced, intrauterine injections, three per cent. carbolic acid solution, are used.

A FATAL CASE OF TETANUS UTERI.

In the *Maryland Medical Journal* of December 10, 1887, DR. WILSON, of Baltimore, reports the case of a primipara, aged twenty-eight, in apparently good health, whose labor proceeded normally through its first stage. As expulsion did not proceed, the forceps was used, but the head, when brought into sight at the vulva, instantly receded when traction was intermitted. While version was about to be performed, the patient died in collapse. Post-mortem version and delivery were made; a band of tensely contracted tissue was felt encircling the shoulders.

Quinine was given early in the labor; chloroform was inhaled during the efforts at delivery; brandy was freely used.

[Tetanus uteri, in the teaching of the Berlin and Vienna schools, is a distinct and dangerous complication of parturition. The tetanic condition of the upper segment of the uterus gives to the finger of the obstetrician the impression of a band of tissue, the band being the lower edge of the contracted muscle. It is usually caused by persistent and ineffectual irritation of the uterine muscle during parturition. Schröder considered chloroform, pushed to the limit of endurance, as the sovereign remedy. Opium and hot applications, or even a full bath, may be also employed.]

A CASE OF URÆMIC AMAUROSIS IN THE PUERPERAL STATE.

MARCUSE, of Berlin, reports the case of a woman, aged forty-two years, who had been married eighteen years. She had borne nine children, in normal labors; during these pregnancies nothing abnormal had occurred. Her tenth pregnancy proceeded normally until five weeks before confinement, when the urine became suddenly dark in color, and scanty; œdema about the feet and ankles also occurred. Uræmic symptoms began soon after the commencement of the first labor pains, followed by severe frontal headache, emesis, and, an hour after delivery, complete amaurosis, which occurred suddenly, and in both eyes simultaneously. Notwithstanding the severe uræmic symp-

toms consciousness was unimpaired, and eclamptic attacks did not supervene, although parturition was somewhat delayed.

The treatment instituted was morphia, hypodermatically; acetate of potassium and squill; an ice-bag on the head, and a strictly milk diet. The amaurosis improved after a day's interval, and in less than a month the patient had recovered. Albuminuria in varying degrees was present during the puerperium. The headache, which was exasperating at first, was promptly relieved by morphia.

Von Gräfe was the first to recognize this condition, and give a favorable prognosis. He ascribed the phenomenon to œdema of the reflex oculo-motor centre and cerebral cortex.—*Zeitschrift für klinische Medizin*, Band 13, Heft 5.

IRREDUCIBLE RETROFLEXION OF THE GRAVID UTERUS; OSTEOMALACIA; EXTIRPATION OF THE UTERUS; RECOVERY.

BENCKISER, assistant to Professor Olshausen, of Berlin, reports the following extraordinary case, from the practice of Professor Olshausen, in the *Centralblatt für Gynäkologie*, No. 51, 1887.

The patient, aged thirty-two years, had suffered from rachitis in childhood. Her first pregnancy was followed by normal parturition. During her second pregnancy she suffered from an exacerbation of osteomalacia; the birth took place by version; the puerperium was normal. Three abortions, at three or four months, followed, during one of which another exacerbation of osteomalacia occurred. In her third month of pregnancy she was brought to the clinic at Berlin.

On examination great pelvic deformity was found. Left-sided scoliosis of the dorsal vertebræ and lordosis of the lumbar vertebræ existed; ankylosis between the ilium and sacrum was present; the pubic arch was beak-shaped, and the left pubic ramus projected into the pelvis; the vulva was patulous, and the cervix uteri was above the entrance to the pelvis, and could not be reached, even when the patient was anesthetized. The pelvis was markedly osteomalacic.

The uterus was strongly retroflexed, and all efforts to place it in its normal position failed. It was then thought best to produce abortion; hot baths, quinine, and pilocarpine were given; and, as a last resort, puncture of the foetal sac, through the posterior vaginal wall, was tried. All these measures having proved unsuccessful, two alternatives presented: to perform laparotomy, open the uterus, extract the fœtus, and suture the uterus and abdomen; the other was total extirpation of the uterus per vaginam; Professor Olshausen chose the latter.

The patient's position during the operation was especially difficult, as the knees could not be separated, and the thighs were raised as far upward as possible. The operation was the usual one for extirpation of the uterus per vaginam; it presented no especial difficulty after the uterus was sized and drawn down. Catgut sutures were employed, and iodoform gauze was tamponed in Douglas's pouch.

On the third day after the operation the patient had a mild parotitis; no other complication arose, and she was discharged cured on the twenty-third day after operation. The operation was less difficult, because of the relaxed

condition of the uterine ligaments, a condition pointed out by Hofmeier in his recent report of operations on the gravid uterus.

The gravid uterus has been extirpated per vaginam three times, by Thiem, Landau, and Hofmeier; in all three cases for carcinoma. The present case is the first extirpation of a gravid uterus per vaginam for any other reason than the existence of cancer.

CORROSIVE SUBLIMATE POISONING.

At a recent meeting of the Berlin Medical Society, VIRCHOW exhibited the organs of three cases of corrosive sublimate poisoning, two of them being puerperal cases. The first was a woman, aged twenty-five, who had been treated before her admission to the Charité with carbolic acid solution. In the hospital she received daily intra-uterine douches of one quart of 1 to 1000 corrosive sublimate solution for three successive days. Death speedily followed, with diphtheritis of the serous membranes, and a condition of the colon which Virchow thought identical with diphtheritic dysentery. Chemical examination of the diseased tissues showed the presence of mercury.

In the second puerperal case, corrosive sublimate was used before admission to the hospital, and in unknown quantity. The genitalia were unaffected, but the heart muscle, kidneys, liver, and bronchial tubes showed the effects of the poison, while the colon presented in marked degree the condition already described. Virchow considered that corrosive sublimate entered the blood with ease, becoming a powerful irritant. Its irritating action upon the tissues rendered them extremely susceptible to the action of microbes, which increased with great rapidity in organisms so poisoned. The pathological changes in the colon were a simple reddening, followed by œdema of the submucosa, hemorrhagic infiltration, diphtheritic exudation, with the accumulation of bacteria and necrosis of the tissues.

LIEBREICH and SENATOR agreed with Virchow's views, reported similar cases, and laid stress upon the ready conversion of corrosive sublimate into albuminate of mercury, and its prompt diffusion.

The united opinion was that so powerful an agent should be used with great caution.—*Berliner klinische Wochenschrift*, 1887, No. 50,

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
OF NEW YORK.

FUNGUS ENDOMETRITIS.

GUÉRIN (*Archives de Tocologie*, October 15, 1887) reported before the Obstetrical and Gynecological Society of Paris a case of metrorrhagia in a stout woman, fifty years of age, who was in perfect health, and had reached the

menopause ten years before. The uterus was only slightly enlarged, and the cervix presented a perfectly normal appearance. There was an almost complete absence of local pain or tenderness. A quantity of material was removed with the curette, resembling small mucous polypi. These were examined microscopically, and were found to be similar in structure to medullary sarcoma. A specimen obtained subsequently was submitted to M. Ranvier, who pronounced it to be epithelioma; vaginal extirpation was accordingly indicated. In the discussion which followed, M. Pajot stated that he had observed four similar cases, in which epithelioma developed in stout, healthy women, who had passed the menopause several years before. He thought that one should suspect cancer whenever a woman begins to flow five or six years after the cessation of the menses. Between the ages of twenty and forty years fungosities removed from the uterus are usually benign; after the menopause they are always malignant. There is frequently no foul discharge until long after the first attack of metrorrhagia.

M. PORAK had observed three cases of epithelioma of the endometrium which simulated simple fungous endometritis, the diagnosis being made only after a microscopical examination of the scrapings.

M. DOLÉRIS called attention to the fact, that at the outset it is sometimes difficult to distinguish between fungosities and epithelioma. The former may become malignant, hence it is necessary to be cautious in giving a prognosis, especially if there is an hereditary tendency to carcinoma.

M. GUÉNIOT said that he could not agree entirely with M. Pajot's statement, since he had known metrorrhagia in a woman of seventy years to be caused by a small submucous polypus.

THE TREATMENT OF ADVANCED EPITHELIOMA OF THE UTERUS BY TEREBENE.

BETRIN, of Geneva (*Nouvelles Archives d'Obstétrique et de Gynécologie*, October, 1887), mentions three principal symptoms of the late stage of cancer that call for special treatment—hemorrhage, pain, and fetid discharge. The first is best treated by means of the curette, followed by cauterization with acetic acid, etc.; pain requires for its relief soothing injections, or local applications of opium, chloral, or cocaine, but the use of morphine should be deferred as long as possible. The fetid discharge from a patient with cancer is often the most distressing symptom, since it renders her an object of disgust to her associates, and isolates her from society. Terebene, while it does not enable us to dispense with curetting and cauterization, is a valuable disinfectant and deodorizer. It is applied in the following manner at the Geneva gynecological clinic:

The patient first receives a vaginal injection; the cervix and vagina are then carefully dried, and tampons saturated with terebene, mixed with an equal part of olive- or almond-oil, are applied to the ulcerated surface, being left in situ for two or three days, when they are removed and fresh ones are substituted. Provided that they are not too large, from three to five of these pieces of cotton cause no discomfort to the patient, and do not interfere with urination or defecation. Under this simple treatment the discharge diminishes in amount and fetor, the cancerous nodules appear to soften down, and healthy granulations spring up, while the hemorrhages become less frequent and

profuse. The progress of the disease seems to be actually arrested by the use of this dressing.

THE BURIED SUTURE IN THE OPERATION FOR CLOSURE OF VESICO-VAGINAL FISTULA.

VULLIET (*Id.*, November, 1887) lays considerable stress upon having the silk perfectly aseptic. He keeps it in a mixture, consisting of ten parts each of iodol and glycerine, and forty parts of alcohol. As soon as it is exposed to the air the alcohol evaporates, while the glycerine and iodol form an aseptic covering to the silk, which is not removed until after union has taken place. In closing a fistula a very fine needle and suture should be introduced at the upper border of the fistula, and the punctures should be quite near together, as in closing wounds of the intestine, the edges of the wound being rolled into the bladder. The first suture having been introduced, the wound is washed with a solution of bichloride, and then a deeper suture is inserted. The first one is removed at the end of a week. The second supplementary suture is important, in that it supports the superficial one and insures perfect coaptation.

OBSERVATIONS ON PELVIC CELLULITIS.

HARDON (*Atlanta Medical and Surgical Journal*, May, 1887) believes that acute cellulitis can be aborted during the stage of effusion by aspirating the serum with a fine needle, introduced at several points. By means of these punctures the tension is diminished, the pain relieved, and there is a rapid decline in the fever. If the effusion takes place between the layers of the broad ligament care must be exercised in introducing the needle, lest the uterine artery be wounded. Contrary to Emmet's statement, the writer does not believe that the procedure is dangerous.

Chronic parametritis, resulting from a previous acute inflammatory process, he regards as comparatively infrequent, most of the indurations felt at the bases of the broad ligaments in cases of lacerated cervix being really distended veins. This is proved by the anatomical distribution of the vessels, and by the fact that obstruction to the venous circulation results from traction on the vessels caused by the sinking of the enlarged uterus below its normal plane. On elevating the organ for a few minutes the masses in question may be felt to soften and diminish in size.

The following practical conclusions are drawn:

1. Acute pelvic cellulitis may frequently be aborted during the stage of infiltration by aspiration.
2. Chronic cellulitis is rarely found, except as a result of acute inflammation.
3. The indurations in the broad ligaments, usually ascribed to chronic cellulitis, are really due to engorgement of the pelvic veins.
4. By elevating the uterus to its normal plane, by means of tampons, this engorgement is relieved.

[The reader will be reminded, in connection with this method of treating acute parametritis, of the "*ponction capillaire aspiratrice*" of French writers.]

THE RELATION OF GONORRHOEA TO GENERATION.

KRONER (*Archiv für Gynäkologie*, Bd. 31, Heft 2), after discussing at length Noeggerath's theory of latent gonorrhœa, considers the more recent observations of Sänger, Bumm, Welander, and others, and then reports his own observations upon puerperal women suffering from gonorrhœal infection. Of 126 women, whom he examined from six to eight weeks after delivery, 97 were shown to have had gonorrhœa at the time of their confinement. Of these, 80 had a perfectly normal labor and convalescence, and presented no subsequent symptoms pointing to disease of the uterine appendages. Moreover, of 21 women who had each borne from two to four children having gonorrhœal ophthalmia, only 3 had any peri-uterine inflammation which could be referred to specific salpingitis. In contrast to the opinion of Noeggerath and Sänger, that abortion is almost inevitable in a pregnant woman having gonorrhœa, Kroner shows that of the 97 infected women whom he observed, only 12 had aborted previous to bearing infected children.

Discussing the question of sterility due directly to gonorrhœal infection, he calls attention to the fact that this sterility cannot be attributed so much to peri-metritic inflammation of tubal origin as is commonly supposed, as shown by the considerable proportion of females with chronic gonorrhœa who had borne several children. Moreover, as Martin has recently shown, specific salpingitis is less frequent than the form occurring in puerperal septicæmia. It should not be forgotten that azoöspemia in the male is a not uncommon result of gonorrhœal epididymitis; in fact, Gosselin found 75 cases among 83 patients with double epididymitis, and Kehler's statistics prove that among 43 cases of sterile women, in more than one-half the sterility was directly due to azoöspemia in the husband.

CASE OF PRIMARY TUBERCULOSIS OF THE FALLOPIAN TUBE.

KÖTSCHAU (*Ibid*) reports the following rare case: A woman, forty-five years of age, having a good family history, had suffered for a year with pains in the abdomen, profuse metrorrhagia, and various nervous disturbances. She had well-marked cachexia. She was treated for retroversion, and subsequently had pelvic peritonitis. On examination a firm, smooth, movable tumor as large as an apple was felt to the right of the uterus; this was supposed to be a malignant ovarian growth, and laparotomy was performed at the earnest request of the patient. On opening the peritoneum a quantity of turbid, purulent fluid escaped. The tumor, of oblong shape, was found lying apparently in a bed of pus; it was so firmly adherent to the surrounding loops of intestine that its removal was impracticable. The patient succumbed to the shock.

At the autopsy the uterus was found to be enlarged and retroverted. The right tube was tortuous and generally thickened. Near the ampulla it expanded into a fluctuating tumor as large as a hen's egg, in the centre of which there was an irregular cavity containing caseous material. Other smaller caseous foci were found in the tubal wall in the vicinity of the tumor. The corresponding ovary was enlarged to the size of a walnut, and was transformed into a caseous mass. The left tube and ovary showed similar changes,

though less marked. A tuberculous cavity (secondary?) was found in the right lung. The microscopical examination of sections of the suspected organs confirmed the diagnosis of tuberculosis, which had evidently begun in the right tube.

As regards the clinical diagnosis of primary tuberculosis of the appendages, Kötschau thinks that it is practically impossible to distinguish it from malignant disease. When the disease is secondary to tuberculosis elsewhere, there will be symptoms in other organs which will give a clue to the true condition. Operative interference is of doubtful value, since it even seems to spread the disease. Statistics are too scanty to allow of any positive statement as to radical cures after removal of tuberculous appendages. Extended observation of reported cases might have shown that the patient subsequently succumbed to tuberculosis of other organs.

THE FREQUENCY OF PATHOLOGICAL CONDITIONS OF THE FALLOPIAN TUBES.

DR. LEWERS read a paper on this subject before the London Obstetrical Society (*British Medical Journal*, 1887, i. 1042), which contained the results of his observations in a series of one hundred autopsies made at the London Hospital. The tubes were found to be extensively diseased in seventeen cases, in four the condition being hæmato-salpinx, in seven pyosalpinx. In the discussion which followed, Dr. Galabin stated that in three hundred and two autopsies upon the bodies of women, performed by the pathologists of Guy's Hospital, distention of the tubes was found in only twelve cases, death being due indirectly to tubal disease in only two or three per cent.

MR. TAIT attributed the higher percentage of tubal disease at the London Hospital to the fact that gonorrhœa was more common among the class of poor patients who were treated in that institution. Mr. Doran thought that the milder forms of disease of the tube were more common; they did not tend to produce marked symptoms or striking pathological changes. [A careful study of the table accompanying this paper affords some interesting points for reflection. It is noticeable, as was observed by Dr. Duncan, that out of the seventeen women who had extensive disease of the tubes, fourteen were over forty years of age, while in only one case was death directly referable to rupture of the tube. The others all died from chronic affections of other organs. This bears directly on the question of the danger of tubal affections *per se*. Concerning the relative frequency of disease of the tubes, we do not doubt that Mr. Tait's explanation with regard to the high percentage in general hospitals is correct. The class of patients treated at the New York State Woman's Hospital is above the average as regards social condition, morality, etc. It is the exception to obtain a clear history of gonorrhœal infection. Since Dr. Lewers's paper is, to a certain extent, a reply to one which we wrote on this subject nearly two years ago, we would add that we have, so far as our personal observation goes, seen no reason to modify the opinions previously expressed.—ED.]

THE RESULTS OF SUPRA-VAGINAL HYSTERECTOMY.

DR. KEITH's brief paper in the *British Medical Journal* of December 10, 1887, is one of the most noteworthy that has appeared for a long time, since

it contains statements which indicate a radical change of opinion on the part of that eminent surgeon. Referring to his own statistics, which show one death in twenty-five private cases (3.8 per cent.) and six deaths in thirty-eight patients who were operated upon in the hospital (15.7 per cent.), Keith makes the assertion that "hysterectomy is an operation that has done more harm than good, and its mortality is out of all proportion to the benefits received by the few." The operation, he adds, is often performed unnecessarily. The mortality is at the best about twenty-five per cent., and one has no right to expose his patients to such a risk. As regards oöphorectomy in cases of fibroid tumors, if the entire ovarian stroma can be removed the operation is not a difficult one; but, when the ovaries lie too close to the tumor, or are situated deeply in the pelvis or behind the growth, so that they cannot be entirely removed, the operation becomes a failure, since the hemorrhage persists and the tumor continues to grow. In every instance, however, in which Keith removed the ovaries entirely, hemorrhage and growth were arrested. Enucleation is not in itself such a dangerous operation, but it requires an unusual degree of care and skill.

Apostoli's method of treating fibroid tumors by electricity receives the highest commendation. Keith practised it over twelve hundred times in nearly one hundred patients, and found that by it hemorrhage was diminished, pain relieved, and the tumor was diminished in size. In only a single instance was there a recurrence of the hemorrhage, and here the tumor diminished to two-thirds of its original size. As Apostoli's method became more improved the field for hysterectomy would be greatly narrowed. Confessing that hysterectomy had never been a favorite operation with him, on account of the high rate of mortality, and the fact that the disease was rarely fatal in itself, he concludes: "So strongly do I now feel on this subject, that I would consider myself guilty of a criminal act were I to advise any patient to run the risk of her life—and such a risk—before having given a fair trial to this treatment, even were I sure that the mortality would not be greater than that which hysterectomy has given in my private cases—under four per cent."

HYDROCELE IN THE FEMALE.

OSBORN (*Ibid.*) reports six cases which were treated by the application of trusses. The condition may be mistaken for irreducible, or (if inflammatory symptoms are present) for strangulated hernia. By tapping the hydrocele before applying a truss, the latter can be made to fit more accurately. The diagnosis is not easy; the principal point is to obtain the transparency by transmitted light, an ordinary single stethoscope being the best instrument to use for that purpose. There is an absence of impulse in the tumor on coughing, and sometimes fluctuation can be obtained. In doubtful cases the diagnosis can be cleared up by introducing a hypodermatic needle and withdrawing a clear, pale, yellow serum. Tapping of the hydrocele should always be performed at the patient's home, so that she can be placed in bed immediately afterward. The walls of the cyst should be rubbed together, and pressure should be maintained by means of a truss, or a pad and bandage. A cure is usually obtained by injecting iodine into the sac.

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
A Clinical Study of Carcinoma of the Breast, and its Treatment. By SAMUEL W. GROSS, M.D., LL.D.	219
Aortic Regurgitation with Presystolic Thrill and Murmur in the Mitral Area, and without Mitral Constriction. By BYRON BRAMWELL, M.D., F.R.C.P. (Edin.)	236
An Unusual Case of Ciliary Neuralgia with an Erratic History; A Clinical Study. By E. O. SHAKESPEARE, M.D., and G. E. DE SCHWEINITZ, M.D.	244
Localized Sweating in Thoracic Aneurism. By R. L. MACDONNELL, B.A., M.D.	251
Chronic Pylitis, treated by Kolpo-uretero-cystotomy. By NATHAN BOZEMAN, M.D.	255
A Case of Adeno-sarcoma of the Dura Mater Spinalis. By EUGENE HODENPYL, M.D.	266

REVIEWS.

Leçons sur les Fonctions du Cerveau (reactions volontaires et organiques) et sur l'épilepsie cérébrale. Par le Dr. François Franck	269
The Rectum and Anus: Their Diseases and Treatment. By Charles B. Ball, M.Ch.	273
Pathology and Treatment of Ringworm. By George Thin, M.D.	275
The Diagnosis and Treatment of Eczema. By Tom Robinson, M.D.	276
Diseases of Women. A Handbook for Physicians and Students. By Dr. F. Winckel.	277
Practitioners' Handbook of Diseases of the Ear and Nasopharynx. (Third Edition of the "Aural Surgery.") By H. McNaughton Jones, M.D.	279
Differential Diagnosis of the Diseases of the Skin, for Students and Practitioners. By Condict W. Cutler, M.S., M.D.	281
Manual of Clinical Diagnosis. By Dr. Otto Seifert.	282

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
Treatment of Chorea by Antipyrin	283	The Effects of Acetanilide (Antifebrin)	284
Antipyrin as a Hæmostatic	283	in Febrile Diseases	284
The Antipyretic Effects of Ice applied to the Cardiac Region	283	Subcutaneous Injection of Mercury in the Treatment of Syphilis	285
A Successful Treatment of Hydrophobia	284	The Treatment of Aneurism	285
		Naphthol	286

MEDICINE.

The Treatment of Articular Rheumatism	286	The Mutual Relation between the Saliva and Gastric Juice	291
Pleural Exudate containing an Indigo-forming Substance	287	The Chlorides in Urine in Gastric Disease	292
Creasote in the Treatment of Laryngeal and Pulmonary Phthisis	288	Albuminuria of the Healthy	292
Cardiocentesis	289	Pulsating Spleen	293
Endarteritis Deformans as a Cause of Sudden Death	290	The Connection between Obesity and Diabetes	293
		Diastatic Ferment in the Urine	294

SURGERY.

	PAGE		PAGE
Gunshot Wound of Chest	294	Nephrectomy with Accidental Wound-	
Advances in the Surgery of the Gall-		ing of the Bowel	298
bladder	295	Resection of the Rectum	300
Cystic Tumor of the Kidney Removed		Treatment of Vesical Tumors	300
by Abdominal Section	297	Luxation and Fracture of the Axis	
The Radical Cure of Hernia	298	with Subluxation of the Atlas	302

OTOLOGY.

Diphtheria of the Ear	302	Excision of the Ossicles of the Drum	
Impeded Nasal Respiration and Pu-		of the Ear for Chronic Purulent In-	
rulent Catarrh of the Middle Ear	303	flammation of the Middle Ear	303

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

Primary Carcinoma of the Trachea:		Syphilis of the Trachea and of the	
its Differentiation from Syphilis	304	Thyroid Gland	308
Indications for Thyrotomy and for		Artificial Digestion of Impacted Meat	
Laryngectomy in Carcinoma of the		in the Oesophagus	308
Larynx	306	Intralaryngeal Removal of a Tumor	
Carcinoma of the Larynx	307	of at Least Twenty-five Years'	
A New Oesophagoscope	307	Standing	308

DERMATOLOGY.

Leukæmia Cutis	309	Seborrhæal Eczema	311
Leprosy and Syphilis	309	The Primitive Patch of Pityriasis	
Elephantiasis in Children	310	Rosea	312
A Case of Rôtheln occurring during		On Eczema and Psoriasis	312
the Puerperium	310	Parenchymatous Injections of Corro-	
Soziodol in Cutaneous Diseases	310	sive Sublimate in Lupus	312
Treatment of Melanoderma	310	Eruptiform Hydradenoma	313

OBSTETRICS.

The Induction of Labor	313	Ante-partum Peritonitis	317
The Infectious Character and Presence		A Tumor of the Umbilical Cord	318
of Bacteria in the Lochia	315	The Treatment of Puerperal Sepsis by	
Spontaneous, Perforating Rupture of		Salicylate of Sodium and Alcoholics	318
Vagina, with Partial Escape of the		Ophthalmia Neonatorum	319
Child into the Abdomen	315	Fœtal Infection with Anthrax	320
Intrauterine Douches of Hot Anti-		Rupture of the Uterus; Laparotomy;	
septic Fluid, as Hæmostatics	316	Recovery	320
The Treatment of Post-partum Hem-		Cæsarean Section	321
orrhage	317		

GYNECOLOGY.

Anatomy of Healthy and Diseased		Laceration of the Cervix and its Re-	
Ovaries	322	lation to Uterine Disease	324
Paralysis of the Uterus from Curet-		The Operative Treatment of Retro-	
ting	323	flexion of the Uterus	325
Case of Pseudomyxoma of the Peri-		The Operative Treatment of Retro-	
toncum	324	flexion with Fixation	327
		Extra-peritoneal Explorative Incision	328

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

MARCH, 1888.

A CLINICAL STUDY OF CARCINOMA OF THE BREAST,
AND ITS TREATMENT.

BY SAMUEL W. GROSS, M.D., LL.D.,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON
MEDICAL COLLEGE OF PHILADELPHIA.

IN the following study, the life history and treatment of carcinoma of the female breast are based mainly upon an analysis of 1842 cases, which have been reported within the past ten years. Of these Oldekop¹ records 250 from Esmarch's clinic; Henry² records 192 from the Breslau clinic; v. Winiwarter³ records 170 from Billroth's clinic; Hildebrand⁴ records 152 from Koenig's clinic; Sprengel⁵ records 131 from Volkmann's clinic; Fischer⁶ records 63 from Rose's clinic; Kaeser⁷ records 70 from the clinic of Socin; Kuester,⁸ Heineke,⁹ Banks,¹⁰ Estlander,¹¹ Riedel,¹² and I¹³ record, respectively, 132, 130, 82, 59, 39, and 207, and 165 occurred in the Middlesex Hospital.¹⁴ The term carcinoma is used,

¹ Langenbeck's Archiv, Bd. xxiv., pp. 536 and 693.

² Statist. Mittheilungen über den Brustkrebs, Breslau, 1879.

³ Beitrag zur Statistik der Carcinome, Stuttgart, 1878.

⁴ Deutsche Zeitschrift für Chirurgie, Bd. xxv. p. 337.

⁵ Langenbeck's Archiv, Bd. xxvii. p. 805.

⁶ Deutsche Zeitschrift für Chirurgie, Bd. xiv. p. 169.

⁷ Inaug. Dissert. Lausanne, 1880.

⁸ Verhand. der Deutschen Gesellschaft für Chirurgie, Bd. xii. p. 288.

⁹ Beiträge zur Statistik der Mammatumoren, Erlangen, 1880.

¹⁰ Table of Cases from the Author, and British Med. Journal, March 12, 1887, p. 572.

¹¹ Annales de Gynécologie, t. xiv. pp. 282 and 372, and t. xv. p. 45.

¹² Deutsche Zeitschrift für Chirurgie, Bd. xv. pp. 88 and 456.

¹³ The Medical News, Nov. 26, 1887, p. 613.

¹⁴ Middlesex Hospital Reports for 1885, p. 116

VOL. 95, No. 3.—MARCH, 1888.

interchangeably with cancer, to express a tumor which consists of a cavernous fibrous stroma or framework, the communicating alveoli or spaces being occupied by solid nests, plugs, or cylinders composed of loosely heaped polymorphous epithelial cells, suspended in a serous fluid, without the intervention of a cementing intercellular substance. Hence, sarcoma, which I exhaustively discussed in this Journal for July, 1887, is excluded from the present paper.

Etiology.—Carcinoma of the mamma never develops before puberty; and I have not seen it before the twenty-fifth year, although Henry reports a case at twenty-one, which is, if I do not mistake, the earliest that has been observed. It is very rare before thirty, after which age it gradually increases to between forty-five and fifty, when it reaches its maximum of frequency, 48.66 years being the average, and then decreases; it is very uncommon after seventy. Of 1622 cases in which the age is noted, the youngest having been 21, and the oldest 84 years.

37 first appeared between 20 and 29 years of age.							
268	"	"	"	30	"	39	"
605	"	"	"	40	"	49	"
488	"	"	"	50	"	59	"
199	"	"	"	60	"	69	"
24	"	"	"	70	"	79	"
1	"	"	"	80	"	89	"

Of the entire number not one was observed during the developmental state of the mamma; 305, or 18.80 per cent., appeared during the period of its greatest activity, or up to the age of forty; and 1317, or 81.20 per cent., began after that age, or during its functional decline.

Of 451 cases in which the catamenia are mentioned, 283, or 62.74 per cent., were menstruating at the date of the development of the disease; and only 8.45 per cent. of these were irregular in the performance of that function.

Of 1545 women in whom the social condition is noted, 1321, or 85.50 per cent., were, or had been married, and 224, or 14.50 per cent., were single. Of 1034 in whom it is mentioned, 907, or 87.72 per cent., had borne children, and of these nine-tenths were multiparous; while 127, or 12.28 per cent., were barren. With regard to nursing, I find that, of 416 patients in whom it is referred to, 316, or 76 per cent., had suckled their infants, while 100, or 24 per cent., had not. In nearly 5 per cent. of the fertile women the disease developed during pregnancy or lactation.

The influence of the general health of the patients upon the development of carcinoma is not so marked as some authors teach. Thus, of 627 subjects in whom the point is noted, 417, or 66.50 per cent., were in excellent health: 129, or 20.57 per cent., were in indifferent or mod-

erately good condition; and 81, or 12.92 per cent., were broken down from the effects of the disease. Hence, even when the patients first come under observation, only one-third appear to be injuriously influenced by the progress of the affection; and it may be asserted that the nutrition of scarcely one in twenty suffers previous to sixteen months after the detection of the growth.

Among the profession, as well as the laity, the idea prevails that carcinoma is frequently inherited; but this view is not sustained by a careful analysis of the cases in which this point is mentioned. Thus, a family history of cancer is recorded in 99, or 8.50 per cent., of 1164 cases. A history of cancer in the relatives of cancerous patients does not, however, carry with it a history of inheritance of the disease, so that sisters, brothers, cousins, uncles, aunts, and other connections, must be left out of consideration, and the inheritance be traced in the direct line of descent from parents, grandparents, and greatgrandparents. Looking at the subject from this standpoint, in only 55, or 4.72 per cent., of the 1164 cases, can the disease be said to have been transmitted. In many of these cases, moreover, the history is based upon the mere statement or belief of the patient, and not supported by the evidence of those who have actual knowledge of the family history. In addition to these facts, the 55 cases demonstrate that the tumor was seated in the breasts of the ancestors in only 27, and that in 10 cases the lips, hand, nose, and œsophagus were the seat of epithelioma. In 3 instances the cancer is noted as being "internal," and in 2 others the seat is not given.

From the preceding data, the conclusion is justified that the evidence of the inheritance of cancer is far from being satisfactory. Despite this conclusion, there can be no doubt of the hereditary transmission of the disease, not in the sense, however, of the inheritance of a particulate body, or virus, or germ, or of a blood disease, but of the inheritance of a peculiarity of the structure of the breast, especially of its epithelial elements, which predisposes it to the occurrence of cancer. Thin¹ believes that the vital qualities of the epithelium are feebly developed, through which it is rendered permanently weak and liable to take on the perverted action which gives rise to carcinoma more readily than in persons with normal epithelium. Be this as it may, and I regard the view as being most philosophical, it is certain that cancer is a disease of the obsolete or obsolescent breast. When the affection sets in before the climacteric, the breast is none the less beginning to be useless, in consequence of the changed proportions which exist between its component tissues, the connective tissue stroma predominating. It is this peculiarity of structure, along with the weakness of the secreting elements through

¹ British Medical Journal, 1883, vol. i. p. 555.

original fault of development, that is inherited, and the wonder is that the histories of inheritance are not more frequent and more conclusive. That hereditary transmission will in the future be found to be the most powerful factor in perpetuating the disease admits, in my mind, of no question; but it will require many years of careful watching of the children of carcinomatous ancestors before this point can be determined. In conducting these investigations, it must be remembered that a tumor of the breast of the descendant of a cancerous ancestor may be of an entirely different nature, since, for example, I find that in not less than five of seventy retention cysts there was an unmistakable history of carcinoma in the ancestors. For this reason the diagnosis should be based upon minute examination of the growths occurring in the children of cancerous parents.

Of the causes which favor the occurrence of cancer, antecedent attacks of deep-seated or superficial inflammation of the breast are regarded as being of great importance, and this is especially true of puerperal mastitis and abscess. Of the 907 parous women, 189, or 20.08 per cent., had suffered from puerperal mastitis; but before accepting this bare statement as a proof of a direct connection between the two diseases, there are several points which demand a careful scrutiny. In the first place, the tumor did not always appear on the same side as the inflammation; secondly, the changes produced in the breast by the inflammation are comparatively rarely described; thirdly, the carcinoma has not always been shown to have developed in the portion of the gland that had been inflamed; and, finally, the interval between the inflammation and the appearance of the cancer has usually extended over many years. Of 120 cases of mastitis or abscess in which the histories are clear, the tumor arose in the same breast in 104, and in the opposite breast in 16; but in only 49 could it be demonstrated that it developed out of lumps or circumscribed indurations left by the inflammation. In only 7 cases was the mastitis recent; in the remainder from four to thirty years had elapsed between the inflammation and the appearance of the tumor, the average having been more than fourteen years. These data, in connection with the fact that unmarried and sterile females are free from this cause, render the connection between puerperal mastitis and carcinoma doubtful, although it cannot be denied that mastitis does result in chronic indurations which are made up of dense cicatricial fibrous tissue enclosing glandular elements, thereby giving rise to a structure similar to that of a normal breast during senile involution. Hence, it is not astonishing that, under the influence of the period of life at which carcinoma usually appears, the epithelial elements should not react physiologically, but now and then grow atypically and lay the foundation of cancer.

Nonpuerperal abscess of the breast preceded the development of

carcinoma in 1 out of 44 cases from the practice of Rose, and in 5 out of my own 207 cases, in 4 of which the tumor appeared at the site of the abscess. It is also quite probable that deep lesions of the nipple, which continue to be irritated by the nursing child, may exert an influence; as they were present in 14 out of 373 cases in which this point is noted. Of the remaining precursory conditions of carcinoma, the so-called eczema of the nipple and areola, to which attention was first directed by Sir James Paget, has attracted considerable attention during the past thirteen years. Thin,¹ however, has conclusively shown that the disease is a malignant papillary dermatitis, secondary to carcinomatous degeneration of the epithelium of the mouths of the lactiferous ducts, which leads to destructive changes in the papillary layer of the skin of the nipple and areola, and finally extends along the ducts into the substance of the mammary gland. Hence, the so-called eczema is not a precancerous inflammatory condition, but indicates in reality the early stage of cancer occurring in an unusual situation. Cancer being already present, the morbid condition of the skin is, therefore, an effect and not a cause.

That injuries, such as contusions and blows, are efficient causes of carcinoma, by inciting an atypical growth of epithelium in the involuting breast, cannot be doubted. Thus, the affection was ascribed to trauma in 202, or 13.36 per cent., out of 1511 cases, but it should be mentioned that in only 55 is the evidence conclusive that the tumor developed out of indurations or other conditions following the injury, and that in only 9 did the carcinoma immediately follow the cancer. Just how often the repeated irritation occasioned by badly constructed corsets may prove a factor it is impossible to determine.

In reviewing the predisposing and exciting causes of the disease, it is evident that the age of the patient, which simply denotes atrophy or senility of the tissues of the breast, local irritation, and inheritance, which implies the transmission of peculiarity of structure, are the only factors of which we have any clear knowledge, so that, in the language of Jonathan Hutchinson,² it may be said that "senility gives proclivity, local irritation excites, and, subsequently, hereditary transmission may perpetuate" the affection. The social condition, as declared by Winckel,³ cannot exert any influence upon the development of carcinoma, since the proportion of single women suffering from it, when compared with that of the married, is not much less than the general proportion of single women; while there cannot be any possible connection between childbearing and cancer, since, of women suffering from carcinoma, the proportion of sterile to parous women is about the same as in health.

Number of tumors.—Carcinoma usually commences as a small, circumscribed, densely hard, uneven, or nodulated solitary tuber or lump,

¹ Trans. Path. Soc. London, vol. xxii. p. 218.

² British Med. Journal, vol. i. 1883, p. 553.

³ Lehrbuch der Frauenkrankheiten, p. 765.

which is movable under the skin, but fixed in or to the breast itself. In 3.06 per cent. of all cases, two or more nodules¹ are met with, and in still more exceptional instances, the disease occurs as an infiltration of the entire gland, especially when it arises during pregnancy or lactation. In 1.31 per cent. of all instances it begins in the lactiferous ducts of the nipple, as Paget's disease, or malignant papillary dermatitis.

Seat of tumors.—Of 1664 cases in which the breast affected is noted, the growth occupied the right in 793, and the left in 869, and both breasts simultaneously in 2, so that it is more frequent, by 4.54 per cent., in the left. The seats of election are the upper and outer portions of the gland, and the immediate vicinity of the nipple and areola. Thus, of 820 cases in which the locality is mentioned, the tumor occupied

The upper hemisphere in	.	.	.	.	.	.	90
The lower	"	.	.	.	.	.	51
The outer	"	.	.	.	.	.	83
The inner	"	.	.	.	.	.	32
The upper and outer quadrant in	.	.	.	.	.	.	206
The " inner	"	.	.	.	.	.	55
The lower and outer	"	.	.	.	.	.	32
The " inner	"	.	.	.	.	.	40
The vicinity of the nipple and areola in	.	.	.	.	.	.	231

In not less than 379, or 46.22 per cent., was the tumor seated in the upper and outer portions of the gland, while it occupied the region immediately beneath and around the areola and nipple in 231, or 28.17 per cent. In exceptional instances it develops in an aberrant or outlying lobule just below the clavicle, near the sternum, or in the axilla, so that when met with in the last locality, the tumor has been described as originating in an axillary lymphatic gland. These regions are shown in Figs. 1 and 2.

Rate of growth.—The increase of carcinoma, when compared with the other mammary neoplasms, is slow, so that it rarely attains any considerable bulk. In ordinary scirrhus and colloid cancer the tumor is usually smaller than the gland or portion of the gland that it has replaced; in that form of scirrhus in which the fibrous and epithelial constituents exist in about equal proportion the volume of a small fist is not uncommon, and it may even measure five inches and a half in diameter, as happened in one of my cases which had lasted three years before it was extirpated; in withering scirrhus, the tumor is rarely as

¹ It should be remembered that the presence of two or more nodules in the breast does not always indicate that the nodules are of the same nature. Thus, Kuester and Parker have recorded a fibroma and carcinoma, Richet and Paget two fibromata, I myself have met with three fibromata, and Wald-eyer has seen eight fibromata coexisting with carcinoma.

large as a walnut, while in medullary carcinoma the size of a child's head is not uncommon. Hence, the volume depends upon the relative proportion of the component constituents, being large when the cells predominate, and small when the fibrous stroma is in excess.

FIG. 1.



1. Upper hemisphere. 2. Lower hemisphere. 3. Outer hemisphere. 4. Inner hemisphere.

The rate of growth is not, contrary to the generally received opinion, influenced by the early age of the patient, since I have failed to discover that the increase is more rapid before the age of forty than when the tumor develops later in life. When, however, carcinoma appears during pregnancy or during lactation, its growth is wonderfully rapid, and its course is excessively malignant, of which fact several striking instances are recorded by Klotz,¹ Paget,² and Henry.³ In the case of a lady under my own care, a tumor of the volume of a small walnut was accidentally detected in the sternal portion of the left breast, in the sixth month of

¹ Ueber Mastitis Carcinomatosa Gravidarum et Lactantium. Inaug. Diss., Halle, 1869.

² Lectures on Surgical Pathology, 3d ed., p. 639.

³ Op. cit., p. 80.

her first pregnancy. In two weeks the entire breast was involved, and when I saw her, twelve weeks after the first observation of the disease, the breast was firmly fixed to the chest, the skin was adherent, thick, brawny, and pervaded by stuffed lymphatics, and the axillary, as well

FIG. 2.



1. Upper and outer quadrant. 2. Upper and inner quadrant. 3. Lower and outer quadrant.
4. Lower and inner quadrant. 5. Region of the nipple and areola

as the supraclavicular, glands were extensively invaded. In a remarkable instance reported by Billroth¹ the disease developed in both breasts, five weeks before the woman's eighth confinement; and on death, seven days after an easy and natural delivery, or six weeks after the first observation of the disease, the mammae were larger than a child's head, and secondary deposits were found in the thyroid gland, pericardium, liver, omentum, and kidneys.

Early symptoms.—During its further increase—and it grows by progressively invading or infiltrating the tissues at its periphery—or when

¹ Chir. Klinik, Wlen, 1871-76, p. 258.

it has attained only a moderate volume, carcinoma evinces signs which are of great diagnostic value even before the contiguous structures are visibly contaminated, and which are referable to its tendency to contract or draw the component tissues of the breast itself and the adjacent structures into its midst—a tendency due to cicatricial or atrophic changes going on in its older or more central portions.

Among the earliest of these phenomena, particularly when the tumor is superficial, is a dimpling or pitting of the skin. This pitting is entirely independent of carcinomatous adhesion between the skin and the growth, and arises from shortening of the fibrous bands or processes of the superficial mammary fascia which pass from the posterior surface of the skin into the interior of the breast, and which Sir Astley Cooper called the suspensory ligaments. This sign, along with the age of the patient and the consistence of the growth, has enabled me, in several instances, to diagnosticate the true nature of a tumor not larger than a small filbert.

In 5.22 per cent. of the noncarcinomatous neoplasms of the breast the nipple is buried, displaced, or sunken, simply for the reason that the tumor grows beyond its level, so that by pushing back the former the nipple, as a rule, again partly protrudes. In carcinoma, on the other hand, the mammilla is permanently retracted and fixed, because the contracting growth draws it toward itself by shortening the milk ducts which terminate at its extremity; and this process is the more apparent when the neoplasm develops in the immediate vicinity of the lacteal sinuses, or when the nipple itself is infiltrated and becomes the seat of cicatricial contraction. In my own 207 cases—and writers, strange to say, rarely refer to this point—a retracted nipple was observed in not less than 108, or 52.17 per cent., the large proportion being due to the fact that in 75 the carcinoma was seated in the immediate vicinity of the mammilla and areola. As the nipple is sunken in only 5.22 per cent. of the noncarcinomatous neoplasms, I regard it as a sign the value of which cannot be overestimated. In one of my patients it was the first feature, along with a straw-colored discharge, that directed attention to the disease.

In 15 of my 207 cases there was a spontaneous discharge from the nipple, the fluid being, as a rule, either watery or bloody, or thick and lactescent, while in two additional cases a thick, milky fluid, the so-called cancer-juice, could be expressed. In one-third of the cases the discharge preceded the detection of the tumor.

To the same cause, or intraction of, combined with pressure upon, the nervous filaments which supply the breast, may be ascribed the pain of which patients so commonly and so early complain. Usually of an intermittent, darting, pricking, or neuralgic character at the outset, the suffering becomes more constant and aggravated with the progress of the disease, and particularly when the skin is extensively invaded and ulcer-

ated, the lymphatic glands infiltrated, and the arm swollen, until, finally, it is frequently atrocious; extending in various directions, as, for example, to the shoulder, neck, back, and arm, interfering with sleep and nutrition, and hastening the fatal issue. In 4 per cent. of all cases there is absolutely no suffering whatever; in 8 per cent. there is merely a sensation of discomfort or weight; while in 88 per cent. there is real pain, which varies, however, greatly in intensity and character.

Local extension.—With the further advance of the disease, but not, on an average, before the expiration of thirteen months after its first observation, marked changes ensue. These indicate, first, local infection, or regional dissemination, through the extension or growth of young epithelial cells, along the course of the lymphatics and perivascular lymph-sheaths, into the adjacent tissues; and, secondly, the transfer of the cells by the lymphatic vessels to the associated lymphatic glands. These changes, when regarded in their chronological order, are invasion of the skin, the glands, the muscles of the chest, the ribs, the pleura, the anterior mediastinum, and the opposite breast.

Infection of the contiguous tissues shows itself either in the form of adhesion or fixation of the tumor to the skin and walls of the chest, or as distinct nodules or tubers which are visible to the naked eye when superficial, or are detected during operative procedures.

Of the 1414 cases in which this point is noted, invasion of the skin, as evinced by its adhesion or discoloration, was met with in 599, or 42.36 per cent.; by the formation of tubers in 152, or 10.44 per cent.; and by ulceration in 338, or 23.90 per cent., so that, omitting the cases in which two or more of these features are present, it is involved in 62.26 per cent. of all instances. In the majority of cases, the skin is adherent, thinned, and of a purplish, bluish-red, or dusky-red tint, with enlargement of its small vessels, and the seat, possibly, of superficial and limited desquamation, conditions which precede ulceration. In some examples it is thick, rigid, and brawny, like the skin of a lemon or the rind of bacon, and, now and then, œdematous, and pervaded by varicose lymphatics, which may be plugged with epithelial cells, or merely obstructed by lymph cells, or it may be drawn in so as to resemble a cicatrix. When nodules form, they may present the appearance of flat, irregular plates; but they are usually shot-like or pea-like or biconvex, and frequently attain the size of a hazel-nut or a small hickory-nut, and are covered by discolored skin. Occasionally, and particularly when the subcutaneous connective tissue is simultaneously involved, they form large masses, which extend beyond the middle line of the chest, involve the opposite breast, ulcerate, produce great suffering, and finally convert the front and sides of the thorax into a mass of offensive disease. Under these circumstances, the tubers need only undergo atrophic changes to constitute the affection known as cancer en cuirasse, which is met with once in every twenty-two cases.

When withering does not ensue, the affection is termed lenticular cancer by Schuh, and pustular or disseminated scirrhus by Velpeau, and the disease may extend to the neck, shoulder, arm, abdomen, and back. In other cases, by the union of the nodules with the main tumor, and by their progressive growth, the breast is converted into a large bossed mass.

Invasion of the skin is the earliest perceptible sign of local malignity, but it may be delayed for seven or eight years. I have met with it as early as two weeks; but the average date of its appearance is 15.8 months, which is the mean of 13.9, 14.4, 15.8, 13.6, 25.1, and 12 months recorded, respectively, by Winiwarter, Oldekop, Sprengel, Hildebrand, Heineke, and myself. According to the observations of Heineke, Sprengel, and myself, the skin becomes adherent 1.5 months before the formation of nodules or tubers.

Although I have included ulceration among the phenomena of infection of the integument, many ulcers result from fatty and disintegrating changes which take place in the substance of the tumor itself. Hence the process may be superficially or deeply seated. In the former event the thinned and discolored skin is at first cracked, fissured, excoriated, or eroded, and covered by thin crusts. Ere long a sore forms, which has a pale granulating base, and discharges a thin, offensive fluid. Now and then it heals over, the cicatrix being thin, tense, red, and traversed by small vessels; or healing occurs in the first breach of continuity, while the ulceration continues to spread. In the second form of sore, or that which ensues from the breaking down of the tumor, there is a deep, excavated, or crater-like cavity, with irregular, discolored, full, indurated, and everted edges, and a base which is usually formed of hard granulations, and which discharges a puriform, bloody, foul, or ichorous fluid.

The ulcer of carcinoma differs from that of the other mammary neoplasms. In myxoma and sarcoma especially, the sore may be deep and excavated, and its walls composed of disintegrating tumor tissue; but the ulcer of the simple growths is essentially a fungating one—that is to say, it is attended with the protrusion of pedunculated masses, which are not attached to the sides of the ulcer. The edges of the ulcer are, moreover, smooth, even, and free from discoloration and infiltration. Although carcinoma is said to throw out fungous masses, I fancy that the statement is mainly traditional.

I have witnessed ulceration as early as two months, but it usually declares itself, on an average, in 19.9 months. Winiwarter fixes the mean date of its appearance at 17.7 months, Oldekop at 26.4 months, Sprengel at 20.3 months, Heineke at 19.3 months, while my cases averaged 15.8 months.

Of the signs of local infection the next in order of frequency is inva-

sion of the deep tissues, as indicated by infiltration of the pectoral fascia, or the formation of distinct nodules in the pectoral and intercostal muscles and ribs, which corresponds to the fixation or adhesion of the tumor to those structures. Of 1020 cases in which this point is noted, the mamma was mobile in 860, and more or less closely adherent in 160, or 15.69 per cent. In the latter class of cases, distinct tubers were also found, on operation, in 1 case out of every 9.3 in the pectoral muscles, in 1 out of every 73.6 in the intercostal muscles, and in 1 out of every 37 in the ribs. In 1 case out of every 12.3, nodules were present in the paramammary fat.

Immobility of the tumor on the subjacent tissues is witnessed, on an average, in 21.9 months, which is the mean of 22.7, 23.4, 24.8, and 16.9 months recorded, respectively, by Winiwarter, Oldckop, Heineke, and myself. Hence, it will be observed that fixation of the growth ensues 6.1 months after adhesion to the skin, and 2 months after ulceration. I have myself met with it as early as the second and as late as the twenty-seventh month. It, moreover, usually coexists with infection of the lymphatic glands, the presence of which may be suspected, if they cannot be felt, whenever fixation of the tumor declares itself.

Among the more uncommon evidences of local dissemination is the invasion of the opposite breast, which is noted in 48, or 2.85 per cent., of 1681 cases. Although I have included this as one of the symptoms of local extension of the disease, it is highly probable that, in the majority of the cases, the disease was independent of the tumor of the first breast affected. Be this as it may, implication of the other breast is a late sign, appearing, on an average, at 29.8 months, although it is witnessed as early as four months, and as late as six years. Of 28 cases of which I have the full particulars, in 24 it was preceded by enlargement of the glands; and in 13 of these there were also nodules in the skin, and ulceration was present in the original tumor in 7. In 2 cases there was no glandular involvement, but in both the disease was preceded by cutaneous tubers and by ulceration of the primary growth. In 2 there were no complications.

From the preceding facts we learn that carcinoma evinces a remarkable disposition to infect the adjacent tissues, and that it progresses at first toward the surface. The skin is invaded in 66.26 per cent.; deep attachments ensue in 15.69 per cent.; and the opposite breast suffers in 2.85 per cent. of all instances. The occurrence of local dissemination is, moreover, indicated by the formation of circumscribed nodules in the skin in 10.44 per cent., in the paramammary connective tissue in 8.13 per cent., in both of these situations, as in the cuirass form of cancer, in 4.57 per cent., in the pectoral muscles in 10.77 per cent., in the intercostal muscles in 1.35 per cent., and, finally, in the ribs in

2.7 per cent.¹ In the order of the date of their appearance we may look for extension to the superficial fascia and skin in 15.8 months, for ulceration in 19.9 months, for fixation to the chest in 21.9 months, and for invasion of the second breast in 29.8 months. These facts, elicited by clinical and post-mortem evidence, have an important bearing upon the question of glandular infection and the formation of secondary growths in the internal organs. Thus, of the 192 cases of local dissemination, recorded by v. Török and Wittelshöfer, invasion of the glands was met with in 52.6 per cent., and metastases were discovered in 72.9 per cent. Of the 174 cases, on the other hand, which were free from local infection the glands were affected in 42.5 per cent., and metastases had occurred in 45.4 per cent. Hence, it appears that the occurrence of glandular and systemic infection is greatly favored by local dissemination. All of these data must be considered in deciding the question of operation, to which reference will again be made under the head of treatment.

Invasion of the lymphatic glands.—The reproduction of carcinoma in the associated lymphatic glands is one of the most practically interesting of its malignant features, and exerts a decided influence upon the course of the disease, upon the formation of metastatic deposits, and upon the final issue after operative procedures. As the loose collections of cells are contained in the lymph spaces of the mammary gland, which are the radicles of the lymphatic vessels, one can readily conceive how easily, and, indeed, how inevitably, the young epithelial elements are transported to the lymphatic glands in the axilla and above and below the clavicle, where they implant themselves, proliferate, and reproduce the likeness of the parent growth. When the glands are affected, they delay¹ for a certain period, on the one hand, metastatic deposits, and, on the other hand, constitute new foci of local and general infection. Hence the cells of a packet of indurated and enlarged glands behave precisely like the primary tumor; that is to say, they invade the surrounding tissues and infect the adjoining glands and the viscera. Just how often the glands enlarge as a result of inflammatory or irritative hyperplasia, as is witnessed in other mammary neoplasms, I am unable to say; but it is very certain that they are not always carcinomatous,

¹ These points are still further illustrated by v. Török and Wittelshöfer from the records of 366 post-mortem examinations of women dead of carcinoma of the breast, an account of which may be found in Langenbeck's Archiv, Bd. xxv. p. 873. In 184 an operation had been performed, while 182 ran a natural course. Of the entire number 192 were marked by local dissemination or regional infection. The skin was invaded in 148, or 40.43 per cent., in 38, or 10.38 per cent. of which nodules were present, and in 110, or 74.32 per cent. of which ulceration had taken place. The chest muscles were infected in 80, or 21.86 per cent., tubers were found in the pectoral in 58, or 15.84 per cent., and in the intercostals in 22, or 6.01 per cent. The bony walls of the chest were affected in 52, or 14.20 per cent., the ribs being involved in 29, or 7.92 per cent., the sternum in 20, or 5.46 per cent., and the clavicle in 3, or 0.82 per cent. The pleura was involved in 25, or 6.08 per cent., the pericardium in 2, or 0.54 per cent., the mediastinal glands in 24, or 6.55 per cent., and the opposite breast in 33, or 9 per cent.

since, as I shall show hereafter, several cases are on record in which, having been left behind during operations, they have subsided, and the patients were living several years—in one case, indeed, ten years afterward—free from disease.

Out of 1638 cases in which it is mentioned, glandular infection was witnessed in 1115, or 68.07 per cent., when the patient first came under observation. In all of these cases the axillary glands were affected, and along with these the supraclavicular glands were involved in 5.44 per cent., the subclavicular in 1.34 per cent., and the cervical in $\frac{6}{17}$ of 1 per cent.

Of the 366 post-mortem examinations recorded by von Török and Wittelshöfer,¹ the axillary glands were infected in 175, or 48.08 per cent., the supraclavicular in 4.1 per cent., and the cervical in 4.1 per cent. The smaller proportion is, doubtless, due to the fact that one-half of the cases had been subjected to operation.

Carcinomatous degeneration may occur in a few weeks, or may be delayed for seven years. In 136 examples I myself have witnessed it as early as two weeks, and as late as five years, the latter being an instance of atrophying scirrhus. About 1 case in every 4 $\frac{1}{2}$ is met with in the first six months; but the average date of its appearance is 14.7 months, which is the mean of 14.7, 16.5, 9.7, 14.3, 20.6, and 12.8 recorded, respectively, by Winiwarter, Oldekop, Heineke, Sprengel, Fischer, and myself. Hence, it antedates invasion of the skin by one month, ulceration by five months, deep adhesions by seven months, and extension to the opposite breast by fifteen months. In exceptional instances it is even observed before the primary tumor is noticed.

A point of interest, and it is one which must have attracted the attention of every surgeon, is, that the seat of the carcinoma exerts no influence upon the frequency, or the date of the appearance, of the lymphatic tumor. In other words, the glands are not involved earlier or oftener when the original growth is near the axilla, or when it occupies the inner periphery of the mamma.

While it is an established fact that the cases uninfluenced by operation, in which the gland contamination does not evince itself until late, pursue a more chronic course, and do not perish nearly so quickly as those in which the glands are infiltrated early in the affection, statistics show conclusively not only that the chances of removing the entire disease are greatly lessened when the glands are enlarged, but that, as in the former instance, the patients succumb much sooner, and that recurrence is far more rapid. Thus, of 136 subjected to operation, 43 were free from glandular tumors, and their average life from the first observa-

¹ Von Török and Wittelshöfer, *op. cit.*, p. 380, show that in 20 per cent. of all examples of invasion of the glands, metastatic tumors are absent.

tion of the disease to the fatal issue was 52.7 months. Among these patients local reproduction ensued, on an average, in 8 months. Of 93 in whom both the breast and the glands were removed, the mean life was 39.3 months, and the average time of recurrence was 1.9 months. Hence, the former lived 13.4 months longer than the latter, and when there was recurrence it appeared 6.1 months later.

The number of glands involved is sometimes enormous, being greater even than the study of normal anatomy leads one to conceive. Thus, from a woman forty-eight years of age, in whom the disease had existed eighteen months, fifty glands, which varied in size from a small shot to a hazel-nut, were removed. On her return to the clinic, ten weeks subsequently, the disease was found to have recurred at the edge of the pectoral muscle, in the axilla, and in the supraclavicular glands.

In the majority of instances the glands are separate and distinct. In others they constitute a densely hard, conglomerate, knobby mass; while, now and then, the disease is confined to a single gland, which may, as in a case of my own, measure three inches and a quarter by one inch and three-quarters in its long and short diameters.

Metastatic deposits.—After invasion of the lymphatic glands the cells pass into the circulatory system, are transported to the viscera, the bones, and other tissues, in which they proliferate, reproduce the likeness of the primary growth, and in this way develop metastatic deposits or growths. General dissemination may, however, manifest itself without antecedent glandular infection, but such a course is exceptional. Thus, of 61 post-mortem inspections in which systemic secondary tumors were discovered, the intervening glands were involved in 52, or 85.24 per cent.; in 2, or 3.27 per cent., there were merely tubers in the skin and pectoral muscle; while in 7, or 11.47 per cent., there were no primary complications whatever. Hence, in about 1 case in every 7, metastasis occurs without implication of the glands; from which it appears that infection may take place through the bloodvessels, and that the absence of enlarged glands affords no absolute guarantee that the viscera are not already invaded. The presence of metastatic tumors without antecedent glandular infection is also demonstrated by the investigations of von Török and Wittelshöfer. Thus, of 175 cases complicated by infected axillary glands, secondary growths were found in 57.7 per cent., while of 191 cases without glandular involvement metastases had occurred in 62.3 per cent.

Of the frequency of metastatic deposits our knowledge is not satisfactory, for the reason that it is by no means easy to follow our cases or to obtain post-mortem examinations. My own observations in this respect are worthless, as I was enabled to make a section in only one case, it being one of atrophying scirrhus which had lasted for upward of seventeen years, and in which I detected tumors in the lungs, the

pleura, the bronchial and mediastinal glands, and the right kidney. The tables of Winiwarter, Oldekop, Henry, Kaeser, Kuester, Sprengel, Riedel, Estlander, Fischer, and Hildebrand, however, contain 134 cases of general dissemination confirmed by section after death, and 70 cases in which that condition was determined by well-marked symptoms during life. They were distributed as follows:

Died without operation	74	Metastases in	11	Presumed metastases in	6
Died from the effects of					
operation	168	"	15	"	0
Died with recurrence					
after operation . .	435	"	72	"	49
Died with metastases,					
but without recur-					
rence after operation	36		36		
Died with presumed					
metastases, but no re-					
currence after opera-					
tion	15				15
	<hr/>		<hr/>		<hr/>
	728		134		70

Hence, of 728 patients, metastatic deposits had formed, or were presumed to have formed in 204, or 28.02 per cent. As indicated by section, they were present in 51 per cent. This latter point is interesting, as it denotes that death ensues in one-half of all cases merely from the baneful effects exerted upon the nutrition of the patient without cancerous degeneration of the viscera, or from intercurrent diseases, of which the most common are pleuritis, tubercle, and pneumonia.

The date at which metastases form varies from five months to eight years. Out of every 100 cases 24 will be found within a year; 3 in from thirteen to eighteen months; 18 in from nineteen to twenty-four months; 27 in from twenty-five to thirty-six months; and 28 after three years. Winiwarter, Henry, Oldekop, and Sprengel, compute the average date of death from metastases from the first appearance of the disease, respectively, at 23.7, 31.7, 38.2, and 24 months, so that the general mean is 29.4 months, or 14.7 months after glandular infection.

In the 114 cases in which sections were made after death, the relative frequency of the seats of the secondary deposits is shown by the following statement:

Dura mater in	3 cases.	Ovary	in 3 cases.
Pleura	" 17 "	Uterus	" 1 case.
Pericardium	" 2 "	Bladder	" 1 "
Brain	" 3 "	Peritoneum	" 1 "
Lung	" 41 "	Omentum	" 1 "

Œsophagus in	1 case.	Bones	in 18 cases.
Stomach	" 11 cases.	Muscles	" 2 "
Intestine	" 2 "	Bronchial glands	" 3 "
Liver	" 42 "	Mediastinal glands	" 4 "
Spleen	" 5 "	Retroperitoneal glands	" 5 "
Kidney	" 5 "	Mesenteric glands	" 2 "
Adrenal	" 1 case.		

With a view to determine the relative frequency of the locality of the metastatic growths from a larger number of cases, I have obtained the following results by adding to the 114 cases 89 compiled by Arnold, Morris, and Clark from the registers of the Middlesex Hospital, and 220 recorded by v. Török and Wittelshöfer. Thus, of 423 post-mortem inspections, secondary tumors were discovered in the

		Per cent.			Per cent.	
Dura mater	in	25 or	5.9	Stomach	in 20 or	4.7
Brain	"	40 "	9.4	Intestines	" 8 "	1.8
Spinal cord	"	1 "	0.2	Pancreas	" 7 "	1.6
Pericardium	"	19 "	4.4	Omentum	" 6 "	1.2
Heart	"	4 "	0.9	Œsophagus	" 1 "	0.2
Venous system	"	4 "	0.9	Kidney	" 24 "	5.7
Bronchial glands	"	15 "	3.5	Adrenal	" 8 "	1.8
Mediastinal glands	"	4 "	0.9	Bladder	" 3 "	0.7
Retroperitoneal glands	"	23 "	5.4	Ureter	" 1 "	0.2
Mesenteric glands	"	14 "	3.3	Mamma	" 33 "	7.8
Lung and pleura	"	38 "	8.9	Ovary	" 34 "	8.
Pleura	"	178 "	42.0	Uterus	" 22 "	5.2
Lung	"	175 "	41.0	Tubes	" 4 "	0.9
Thyroid gland	"	8 "	1.8	Vagina	" 2 "	0.4
Liver	"	206 "	48.6	Bones	" 87 "	20.5
Peritoneum	"	20 "	4.7	Muscles	" 3 "	0.7
Spleen	"	20 "	4.7			

It will thus be seen that the digestive, respiratory, osseous, and nervous systems are the seats of predilection, and that the lungs suffer rather more frequently than the liver.

In connection with the occurrence of secondary deposits attention may be called to what Herbet Snow¹ calls "a neglected symptom in breast cancer," that is to say, a thickening of the upper end of the humerus, with tenderness on pressure, which he declares sets in, in the majority of cases, simultaneously with enlargement of the axillary glands, and which he ascribes to carcinomatous invasion of the medulla. I have faithfully tested this symptom, and met with it only once in 107 cases. V. Török and Wittelshöfer² show that of 336 post-mortem examinations of women dead of mammary carcinoma, secondary deposits were

¹ Lancet, 1880, vol. i, p. 912.

² Loc. cit., p. 883.

found in 220, and of these the humerus was implicated in only 5, in 2 of which it had undergone fracture. Hence, neither clinical nor post-mortem evidence indicates that the observations of Snow are correct.

Cancerous cachexia.—With the progress of the local and general disease the so-called “cancerous cachexia” is established. This is nothing more than the general failing of the powers, such as is witnessed in many other maladies, attended with loss of blood, offensive and exhausting discharge, and suffering, and is due to the improper performance of the functions of the viscera, and the consequent ill effects produced upon the general nutrition, as indicated by wasting, loss of appetite and strength, nausea, sallowness, and a quick and feeble pulse. As we have just seen, death occurs, as demonstrated by post-mortem inspection, in an equal number of cases, whether there be visceral deposits or not. The latter succumb from the intensity of the local disease and its effects; the former from the effects of metastases, as indicated by symptoms which denote implication principally of the lungs, pleura, liver, digestive organs, and nervous system.

(To be concluded.)

AORTIC REGURGITATION WITH PRESYSTOLIC THRILL AND MURMUR IN THE MITRAL AREA, AND WITHOUT MITRAL CONSTRICTION.

BY BYROM BRAMWELL, M.D., F.R.C.P. (EDIN.), F.R.S. (EDIN.),

ASSISTANT PHYSICIAN TO THE EDINBURGH ROYAL INFIRMARY; LECTURER ON THE PRINCIPLES AND PRACTICE OF MEDICINE, AND ON PRACTICAL MEDICINE AND MEDICAL DIAGNOSIS IN THE EXTRA-ACADEMICAL SCHOOL OF MEDICINE, EDINBURGH.

ALL observers, whether they believe that the presystolic murmur is auricular-systolic, or ventricular-systolic in its method of production, seem to be at one in thinking that it is a certain indication of stenosis or narrowing of the mitral orifice. The late Dr. Austin Flint was, so far as I am aware, the only authority of note who differed from this view. He, as all physicians who are interested in things cardiac know, was of opinion that in some cases of aortic regurgitation in which the mitral valve is absolutely healthy, a presystolic murmur, having all the sound characters of the characteristic murmur of mitral stenosis, is generated at the mitral orifice. In one of the last, if not *the* last paper which was published before his lamented death, he reiterates the grounds for this belief and adheres to the opinion which he had previously expressed in the most positive manner.

“The author,” he says, “of a late work on diseases of the heart,

states that a constriction of the auriculo-ventricular opening is always present when a presystolic murmur exists. This statement expresses the prevailing opinion at the present time. That this opinion is erroneous, the writer of this article not only believes, *but knows* (no italics in the original). This strong statement is made for the reason that his knowledge is based on recorded clinical observations during life, and post-mortem examinations in cases in which the murmur existed and the mitral valve was sound.”¹

He then details three cases (one observed in May, 1860, one in February, 1861, and one in the autumn of 1882), on which the theory is founded; and states: “On the basis of these three cases, to assert positive knowledge of the fact that a mitral presystolic murmur may be produced without mitral lesion, does not appear to the writer to imply undue assurance.”

Such a definite statement, coming from an authority of such eminence, and of such enormous clinical experience as the late Dr. Austin Flint, and from one who is, I suppose, universally acknowledged to have been eminently careful, cautious, and truthful in all his observations, must necessarily carry great weight, however much it may appear to be opposed to current medical opinion and belief.

Since becoming acquainted with Dr. Flint's views, I have been diligently looking for some corroborations of them; and as the case recorded below seems to me to lend some support to Flint's theory, I take this opportunity of placing it on record. It must, however, be observed that in the absence of post-mortem verification, purely clinical facts cannot be considered conclusive, and that while my mind is open to conviction, and while I shall continue to look for fresh facts, I do not as yet see sufficient grounds for abandoning my previous position—that is to say, for giving up the generally accepted view as to the value of a presystolic mitral murmur as a sign of organic disease (stenosis).

Before detailing the facts of the case, it may, perhaps, be well to give Flint's explanation of the manner in which the murmur is produced. He says:

“The difficulty of explaining why, as a rare occurrence, a mitral presystolic murmur without mitral lesion accompanies incompetence of the aortic valve, does not do away with the clinical fact. The writer has submitted an explanation which he will here introduce. He admits, however, fully the force of the objection which has been raised to the explanation by Hayden and Bramwell, to wit, that accepting the explanation, it would be expected, *à priori*, that the murmur should not rarely, but frequently accompany aortic regurgitation, and should occur even without any lesion of the aortic valve. The explanation which he has given, quoting his own words, is as follows: ‘The explanation involves a point connected with the physiological action of the auricular valves. Experiments show that where the ventricles are filled with a liquid, the valvular curtains are floated away from the ventricular

¹ The International Journal of the Medical Sciences, New Series, vol. xci. p. 35.

walls, and, approximating to each other, they tend to close the auricular orifice. In fact, as first shown by Baumgarten and Hamernik, a forcible injection of liquid into the left ventricle through the auricular opening, will cause a complete closure of this opening by coaptation of the mitral curtains, so that these authors contend that the mitral (? initial) closure of the auricular orifices is effected, not by the contraction of the ventricles, but by the forcible current of blood propelled into the ventricles by the auricles. However this may be, that the mitral curtains are floated out and brought into apposition to each other by simply filling the ventricular cavity with liquid, is a fact sufficiently established and easily verified. Now, in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta, as well as downward from the auricle, before the auricular contraction takes place. The distention of the ventricle is such that the mitral curtains are brought into coaptation, and when the auricular contraction takes place the mitral direct current passing between the curtains thus in contact with each other throws them into vibration, and gives rise to the characteristic blubbery murmur."¹

The notes of the case are as follows :

J. H., æt. forty-two, a laborer, came under my notice as an out-patient at the Edinburgh Royal Infirmary on the 28th of October, 1886, complaining of severe paroxysmal pain in the region of the heart, cough, and shortness of breath.

Previous history.—The patient stated that he was perfectly well until two months ago, when he got cold, suffered from bronchitis, and his present complaints commenced. All his life he has had to do very heavy, laborious work, involving much muscular effort and strain. He worked all through the past winter (1885-86) without feeling any shortness of breath or præcordial distress, and during that period he was not off work for a single day. In answer to a leading question he stated that during the past year he has occasionally felt giddy. Thirteen years ago he had a severe attack of rheumatic fever; he does not know whether the heart was affected at that time, he has never had any reason to suppose that there was anything wrong with it. There is no history of syphilis, and there were no rheumatic manifestations when the present symptoms commenced.

Present condition.—The patient, who is a spare, but muscular man, is very pale in the face. Marked jerking, collapsing pulsation is visible in all the superficial vessels, capillary pulsation can be produced on scratching the forehead, but the blush, which is thus elicited, is of very temporary duration. The feet and legs are not and have never been swollen. The præcordial pain is very severe; it comes on several times a day, and is excited by the least bodily exertion or mental excitement, sudden exposure to cold, going, for example, from a warm into a cold atmosphere, also produces it. The pain is confined to the region of the heart, it does not shoot up to the shoulder or down the arm. The shortness of breath is very distressing, and is produced by the slightest exertion. When the patient is at rest the breathing, though somewhat quicker than normal, is quiet. It is only when he exerts himself that he feels the breathing short.

On physical examination the heart is found to be much enlarged; the apex beat is situated in the sixth interspace, two inches beyond (outside) and two and a half inches below the left nipple, at a distance of five

¹ *Ibid.*, p. 37.

and three-fourths inches from the left border of the sternum. A very distinct presystolic thrill can be felt in the fifth interspace, at a spot one inch outside the left nipple. Pulsation in the suprasternal notch is very distinct, and the percussion note over the manubrium sterni and ascending thoracic aorta is distinctly impaired.

On auscultation, a well-marked double (systolic and diastolic) murmur is heard over the course of the aorta, and up and down the sternum. The same murmur is also audible in the vessels of the neck, the systolic portion being here more distinct than the diastolic. The heart's action is quick; and the duration of the diastolic portion of the aortic murmur is brief in consequence of the shortness of the ventricular diastole—*i. e.*, the rapid manner in which the left ventricle is filled, and in which succeeding systoles follow one another. At the apex a systolic murmur propagated upward and outward toward the axilla, and a diastolic or rather presystolic murmur is audible; the systolic murmur can be heard at the inferior angle of the scapula.

FIG. 1.

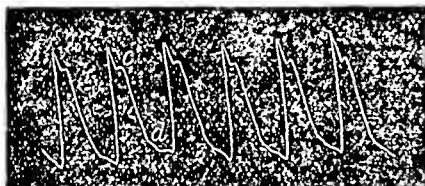
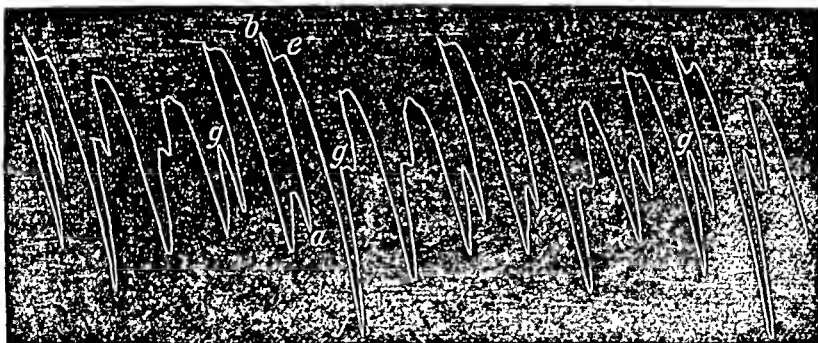


FIG. 2.



Sphygmograms of the right and left radial pulses in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur.)

FIG. 3.



Cardiographic tracing from the apex beat in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur.)

Over the position of the presystolic thrill (fifth left interspace, four and a half inches from the left border of the sternum), the presystolic murmur is more definite and distinct than over the apex beat itself (sixth left interspace five and a half inches from the left border of the sternum). Although this presystolic murmur resembles in its sound characters the presystolic murmur of mitral stenosis, it is difficult, or impossible, by means of auscultation alone to satisfy one's self whether it is a separate and distinct mitral murmur, or whether it is not the diastolic aortic murmur heard as a presystolic murmur in this position.

(fifth left interspace, four and a half inches from the left border of the sternum). The thrill is, however, so characteristic and so distinctly presystolic that the weight of evidence seems strongly in favor of an independent (presystolic) mitral murmur.

The pulmonary second sound is loudly accentuated. Some bronchitic râles are audible over both lungs. The other systems and organs are normal and there is no fever.

The pulse presents the usual characters of free aortic regurgitation, and the sphygmographic tracing is typical of that condition. (See Figs. 1 and 2.) The cardiographic tracing (see Fig. 3) is characteristic of hypertrophy and dilatation with rapid filling of the left ventricle during its diastole; in short, the characters of the cardiographic trace are suggestive of aortic or mitral regurgitation, but afford no indication whatever of mitral stenosis.

The tracings are suggestive of free aortic regurgitation. The heart's action is rapid; the tidal wave *c* is well marked, the aortic wave *d* and aortic notch are situated very low down in the tracing; the duration of the diastolic portion of the tracing is very short, and the artery is very empty during diastole.

The cardiographic tracing (Fig. 3) shows: (1) quick action of the heart; (2) a rapid and well-marked elevation of the upstroke of the lever (*a* to *b*) indicative of sudden and powerful contraction of the left ventricle; (3) a broad, flat top to the systolic elevation of the trace (*b* to *e*) indicative of well-sustained contraction (hypertrophy) of the left ventricle; (4) a very sudden fall of the lever (*e* to *f*) which in some cycles, as at *f*, is so marked as to suggest inversion of the trace; (5) rapid elevation of the lever after the sudden diastolic fall, with, in many instances, the production of a very large wave (*g*), in the diastolic portion of the tracing.

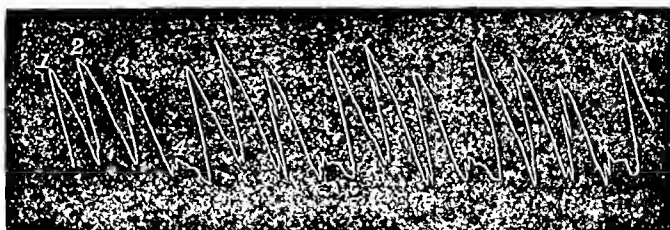
The duration of the diastolic portion of the tracing is diminished rather than increased.

These characters show rapid filling of the left ventricle during its diastole. The large wave *g*, which is seen in some of the cycles, is, I believe, suggestive that this rapid filling of the left ventricle was not merely due to free aortic regurgitation; but that it was at all events partly caused by a powerful blood current being propelled from the over-distended left auricle *through a normal or dilated, and certainly not contracted*, mitral orifice. My observations in other cases would lead me to conclude that this large diastolic wave *g* is not due to free aortic regurgitation alone. In free aortic regurgitation it is not uncommon to find the lever rapidly rising from the point *f* to *g*; and then, after a slight break, continuing its rise, as it were, into another systole. But unless mitral regurgitation is superadded to the aortic regurgitation I have never seen the diastolic wave *g* so marked as it is in this tracing.

In a subsequent paper I propose to publish a series of cardiographic

and sphygmographic tracings of, (1) cases of free aortic regurgitation without any mitral lesion; (2) a case of aortic regurgitation with mitral regurgitation; and (3) a case of aortic regurgitation with mitral stenosis, with the object of more clearly demonstrating some of the points just referred to.

FIG. 4.



Cardiographic tracing from the apex beat in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur), showing a remarkable rhythmically recurring irregularity.

I append another cardiographic tracing in the case of J. H. (see Fig. 4) taken at a subsequent period to that shown in Fig. 3; and when the ventricular contractions were less sustained and regular. This tracing shows a most remarkable irregularity; the cardiac pulsations are, it will be seen, divided into series of four beats; the tracing of each separate beat (say 1) in any one series is quite different from the tracings of succeeding beats in the same series (say 2, 3, and 4); but the tracings of corresponding beats (1, 2, 3, and 4) in the different series presents a remarkable similarity. I do not know that this rhythmically recurring irregularity, as it may be termed, is of any practical significance; but it is so remarkable and peculiar as to be worthy of mention.

Subsequent progress of the case.—Under rest and the administration of digitalis some improvement took place; it was, however, only temporary. In the course of a short time the dyspnoea and præcordial distress were as bad as ever. The patient was at length persuaded to seek admission to the Infirmary, but he would only remain in the wards a few days. He then returned home, and in the course of a short time died. No post-mortem was obtained.

Remarks.—The case is an excellent example of latent heart disease. It cannot, I think, be doubted (from the extensive hypertrophy of the left ventricle) that the aortic regurgitation, which was obviously the chief and primary lesion, had been present for a considerable time. The fact that for at least a year before the patient found it necessary to consult a physician, he had been affected with temporary attacks of vertigo, corroborates this view; and I may remark in passing, that in many cases of advanced regurgitation vertigo is often, for a time at all events, the chief, or the only, symptom.

It is probable, I think, that the cardiac lesion had its starting point in the attack of rheumatic fever thirteen years before. But be that as

it may, the aortic regurgitation had evidently been so effectively compensated, that it was not until an attack of bronchitis, and, perhaps, endocarditis, upset the balance, that shortness of breath or any other cardiac symptoms were experienced.

The chief point of interest in the case—and the one to which I wish particularly to refer—is the fact that a well-marked presystolic thrill and murmur were present in a case of aortic regurgitation in which the cardiographic tracing seemed to show that there was no mitral stenosis.

In those cases of aortic regurgitation in which a presystolic murmur is heard during life, and in which no mitral stenosis is found after death, I have been in the habit of thinking that the murmur in the mitral area was simply the aortic diastolic murmur, heard at the apex, as presystolic.

Such an explanation obviously cannot apply here; for, although the presystolic murmur might perhaps be produced in this way, the well-marked presystolic thrill (which was even more distinct than the murmur) can hardly be accounted for in this manner.

It must, in fact, I think, be conceded that the presystolic murmur and thrill were generated at the mitral orifice; and that they were not merely the vibrations of an aortic diastolic (regurgitant) current heard and felt in the mitral area as presystolic.

This being granted, the question next arises, "Were this presystolic mitral thrill and murmur indicative of organic disease (stenosis)?"

For the reasons already indicated (and more especially because of the fact that there was no lengthening of the diastolic portion of the cardiographic trace, and because of the presence of the large wave (*g*) in the diastolic portion of the tracing), I am disposed to think that there was no appreciable degree of mitral stenosis; and, therefore, to suppose that this may possibly have been a case such as the late Dr. Austin Flint described. In the absence of a post-mortem it is impossible to speak dogmatically as to the condition of the mitral valve, but the case is of so much interest in connection with the late Dr. Flint's views that I have thought it my duty to place it on record.

Theoretically it is, of course, possible that a mass of vegetations adhering to the auricular surface of the valve might cause a presystolic thrill and murmur, without producing any appreciable amount of stenosis or obstruction. Such a condition, though theoretically possible, is practically very rare, even if it ever occurs.

As has been already stated, the fact that a presystolic murmur is rarely observed in cases of aortic regurgitation constitutes, in my opinion, a very serious objection to Dr. Austin Flint's theory.

Granting, however, that a presystolic murmur may be produced in cases of aortic regurgitation in the manner that Flint supposed, it is quite obvious that since its occurrence is the rare exception rather than

the rule, there must be some peculiarity in those cases of aortic regurgitation in which it is present.

These theoretical views were fully explained to the members of my clinical class when the patient first came under observation (October, 1886); and subsequently to the members of the Medico-Chirurgical Society of Edinburgh, to whom the cardiographic and sphygmographic tracings of the case were shown.

It was then suggested that if Flint's facts and theory are correct, the occurrence of this murmur may perhaps be explained by supposing that in those rare cases in which it is met with, the lesion chiefly affects the posterior coronary segment of the aortic valve, with the result that the full force of the regurgitant current falls, as it were, upon the great anterior segment of the mitral valve, forcing it into the position which Flint has described as essential for the production of the murmur. It was stated that as yet I had no pathological facts to support this view; and reference was made to the case of rupture of the posterior coronary segment of the aortic valves, which I have recorded in my *Diseases of the Heart*, page 502, and in which no presystolic murmur was observed; and to Sir Walter Foster's view as to the direction in which the murmur is propagated in such cases.

I have noted with great interest that identically the same explanation of the manner in which the murmur may perhaps be produced has also been advanced by Dr. John Guitéras (Charleston, S. C.). In the second volume of the *Transactions of the Association of American Physicians*, Dr. Guitéras has an important and interesting paper on direct functional murmurs, in which he states that he believes "that obstructive functional mitral murmurs are of frequent occurrence in aortic regurgitation," and in which he says, "I maintain that those propagated murmurs are, in fact, mitral obstructive murmurs, and that they are more apt to develop when the posterior aortic segment is affected, because in such cases the regurgitant stream is brought to bear directly against the anterior leaflet of the mitral valve."

Further, Dr. Guitéras actually records a case of aortic regurgitation (Case III.), in which a presystolic mitral murmur was heard during life, and in which the post-mortem examination showed the entire absence of mitral stenosis and marked disease, more especially of the intercoronary segment of the aortic valve.

This case is of such importance that I make no apology for quoting the details in Dr. Guitéras's own words.

CASE.—H. A., aged fifty-eight. The physical signs in this case pointed to an enormous hypertrophy and dilatation of the heart, with dilatation of the arch, and obstructive regurgitant lesion of the aortic valves. The double aortic murmur was sawing in quality, and could be heard all over the sternum. At the fourth, fifth, and sixth interspaces along the left border of the heart, there

was a low-pitched, rumbling murmur, which was recognized by all those who examined the case as distinctly presystolic in time.

Post-mortem. The heart weighed twenty one and one-half ounces. The aortic valves were short and thickened, especially about the edges. The inter-coronary segment presented a button-hole slit with thick hard edges, the result of sclerotic changes around a congenital fenestration. The mitral leaflets were opaque, large, and slightly thickened, but evidently competent, non-adherent, and smooth. The mitral orifice admitted the introduction of three fingers. The right heart was much smaller than the left, and its valves were healthy.¹

The cardiac pulsations are arranged in groups of four beats (1, 2, 3, and 4), each of which has special characters. The characters of the first, second, third, and fourth tracings of each group of four pulsations are, it will be seen, the same.

AN UNUSUAL CASE OF CILIARY NEURALGIA WITH AN ERRATIC HISTORY; A CLINICAL STUDY.²

BY E. O. SHAKESPEARE, M.D.,

OPHTHALMIC SURGEON AND PATHOLOGIST TO THE PHILADELPHIA HOSPITAL,

AND

G. E. DE SCHWEINITZ, M.D.,

OPHTHALMIC SURGEON TO THE PHILADELPHIA HOSPITAL AND TO THE ORTHOPÆDIO HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES; PROSECTOR OF ANATOMY TO THE UNIVERSITY OF PENNSYLVANIA.

AGNES L., a widow, aged fifty-seven, born in Ireland, was admitted to the Philadelphia Hospital, August 21, 1880, complaining of pain in a scar situated upon the ninth rib in the mammary line. It occurred at varying intervals, sometimes being absent for several days, but usually returning every second day.

History.—The patient's father died at the age of sixty-two from meningitis following a sunstroke. She was an only child, her mother having perished when she was born. As a child she suffered from the ordinary exanthemata and, when a young girl, had an attack of typhoid fever. At the age of sixteen she was married and in her eighteenth year was delivered of her first child. She subsequently gave birth to five other children, the last when she was thirty-six years of age. In 1861, or six months after the birth of her last baby, her husband and eldest child died suddenly of smallpox. The receipt of this news, which was rudely communicated to her, produced an illness which began with unconsciousness and continued in various periods of delirium and hallucinations. At the end of several weeks the mental equilibrium was restored and convalescence progressed to perfect recovery. The attending physician told her that her sickness had been an attack of "brain fever."

¹ Transactions of the Association of American Physicians, vol. ii, p. 39.

² Read before the College of Physicians of Philadelphia.

Through her entire married life her health had been exceptionally good, and there were no indications of uterine disease or history of syphilitic infection. In 1868 she had a fall and struck her left side against a projecting stone producing a severe contusion. This subsided with the exception of one spot, then about the size of a pea, which, she says, "looked like a blood-blister." This spot became elevated and gradually enlarged, while its color faded. In three years it had reached a sufficiently large size to cause considerable annoyance, and was, moreover, the seat of irregular, dragging pains, easily allayed by the application of hot fomentations. In 1871 the tumor was removed, but its exact nature is unknown. For several years subsequently she enjoyed good health, was able to work regularly and support her family. At the end of this time she had a severe attack of intermittent fever lasting six weeks. For one month after recovery from this illness her health appeared to be in its usual state.

In July, 1880, she began to have pain in the cicatrix which resulted from the removal of the tumor. This pain differed from anything she had previously experienced. It was intense, lancinating in character, and came upon alternate days at about ten o'clock in the morning. During each pain-period the scar flushed and took on an angry look. When the pain subsided the color faded. No remedial agency, except a hypodermatic injection of morphia, gave relief. She endured this state of affairs for six weeks and then sought relief in the Philadelphia Hospital, where she was admitted August 21, 1880. She first entered the surgical wards, but after a month of fruitless treatment was transferred, September 21st, to the nervous wards. For several weeks internal remedies were tried in vain, when, by Dr. H. C. Wood's order, the painful cicatrix was removed. For six weeks there was an absolute cessation of pain, when, quite as suddenly as at its original onset, the pain returned with redoubled severity in the old situation. The attacks now usually occurred twice a day, at about ten in the morning and six in the evening, and were accompanied by the flushing of the tissues before described. No especial change, except quite temporary periods of relief, in the patient's state took place until the spring of 1881. Then, by the advice of Drs. Wood and Mills, under whose care she had been, active counter-irritation was performed. Dr. Pancoast made several pronounced applications of the actual cautery, over the posterior roots of the spinal nerves in the lower dorsal region. From the time of this application, for several months (probably two) she was entirely relieved of her sufferings. So radical did the cure appear to be that she was in the act of leaving the hospital when she was seized with pain in the left eye. As before, the pain was intense, lancinating in character, as if a sharp instrument was being thrust rapidly through and through the eyeball. The lids became congested and swollen, the conjunctiva reddened, the lachrymal secretion increased. For some time numerous and various remedies were tried without any but the most temporary results.

She was then transferred, May 20, 1882, to the eye ward, and became Dr. Shakespeare's patient. The pains were frequent, sometimes they occurred daily, sometimes twice a day, but occasionally were absent for a week, never, however, longer than for two weeks. A thorough and systematic anti-malarial treatment was ordered, even in so far as to use a decoction of lemon after the manner of Tommasi-Crudeli. As each successive remedy was tried the result and experience of the past were

repeated. Temporary relief would be obtained, then the effect of the remedy would fail and finally the pains would recur. A careful examination now revealed the following interesting facts. Preceding and during a pain-period marked tenderness over the middle cervical sympathetic ganglion of the same side was manifest. Moreover, pressure upon the eye produced pain in the region of the ganglion, and, *vice versâ*, pressure upon the ganglion caused pain in the eyeball. A similar tender area was found along the spine, directly between the shoulder blades. This led to a return of counter-irritation as a means of treatment. Beginning with iodine and ending with the actual cautery a succession of these agents was employed posteriorly on the left side of the neck and over the spine between the scapulæ. The actual cautery proved most efficacious and for several months the patient was free from her distressing affliction.

For the second time this unfortunate woman believed herself finally rid of her enemy and was in the act of gathering together her effects preparatory to leaving the hospital, when the pain recurred with all its former severity and attended by all its former symptoms. A seton was now introduced into the tissues at the back of the neck, and for a time, as with everything else, relief was experienced, hope returned, only to be displaced by a recurrence of the pain.

Examination of the interior of the eye never revealed any unusual features, as is evidenced by the following description: Round nerve, regular in outline, border distinct. Fundus not noteworthy beyond a peculiar curve of the lower vein. Inasmuch as the pain-periods were accompanied with great swelling of the conjunctiva the nutrition of the cornea was gradually impaired and a form of keratitis developed. This appeared as a curious opacity in the inferior half of the cornea, about midway between the centre and the lower limbus. This opacity, viewed by the ophthalmoscope, appeared to have dark processes like roots radiating from its upper edge. There was no connection between this and the iris or the anterior chamber. The pupil was normal, the anterior chamber of natural depth. There was never any increase of tension, and the field presented no distinct limitations.

In spite of a return to former lines of treatment and trials with all manner of general and special tonics, alteratives, and anti-rheumatic remedies, the pain continued and came with distressing frequency and severity. The keratitis increased, useful sight was obliterated, and the patient begged that the offending eye be removed. Although warned that the removal would in all probability only occasion a shifting of the seat of the affection, she was persistent in her entreaties, and her request was finally acceded to. In exactly three weeks after the enucleation was performed the pain appeared in the right eye in character precisely similar to that which had formerly had its seat in the left one, and accompanied by tenderness of the middle cervical sympathetic ganglion of the right side, just exactly as it had previously been present upon the left side.

Examination of the eye revealed the following features: Iris moved sluggishly to changes of light and shade. Mean size of pupil one-third the size of the cornea. Iris normal in appearance. Media clear. Outline of the optic nerve regularly oval, its long axes 75° . The color of papilla slightly brick-dust. The outer half somewhat paler than the inner, and the corresponding scleral ring more distinct. The vessels

were normal in their course, the arteries probably a little lessened in their calibre. There was slight narrowing of the visual field on the nasal side and above and below. Tension of the eye normal.

To detail the symptoms and course of this case from this period up to the present year would simply be to repeat what has already been described, with the exception of one symptom, viz., the marked tenderness over the middle cervical sympathetic ganglion. This symptom was no longer a characteristic one in June of this year, when Dr. de Schweinitz took charge of the wards. Exactly when this curious tenderness began to subside cannot be definitely stated. Even now, during a pain-period, it is perfectly easy to demonstrate an area of distinct discomfort upon deep pressure over the ganglion, although there is no longer a sense of pain, nor does pressure on this region produce pain in the eye as it formerly did.

A careful reëxamination of the eye at this time showed the appearances before recorded to be unchanged. Moreover, a keratitis in all respects similar to the one which had developed in the left eye, had also appeared in the right one as the sequela of many pain-periods. The light projection was good in all parts of the field. A perimetric chart of the field of vision showed no defects other than those explained by the corneal opacity and a somewhat drooping upper eyelid. No increase of tension was observed at any time. The pains now occurred with great frequency, always once daily about 10 A. M., sometimes twice, when the second one would take place about 7 P. M., occasionally a third one in the middle of the night or early morning. The onset of a pain was as sudden as a lightning-stroke, was instantly followed by œdema and discoloration of the eyelids, reddening and swelling of the conjunctiva and excessive lachrymation. A brawny flush overspread the brow and face, the veins became turgid, the carotids throbbed visibly, the woman bent and trembled in her agony, and presented a picture of utter misery seldom witnessed. If an anodyne was withheld, in a few minutes a muco-purulent catarrh appeared and within the hour gray sloughs upon the conjunctiva, until the whole eye resembled, at the height, an attack of purulent ophthalmia. If morphia sufficient to stop the pain was given, and it was the only remedy of any avail, the appearances just described would subside as quickly as they had appeared. We have often observed an attack come on, reach its height, and disappear with scarcely a remaining trace within an hour or at most two hours. A careful retrial of former remedies was instituted. Quinine, arsenic, and oil of eucalyptus produced no results. Anti-rheumatic remedies, especially the salicylates and oil of gaultheria, gave, if any, the most temporary relief. No favorable response was given to antipyrin and antifebrin. The former was used not only by the mouth but also hypodermatically after the manner of Germain Sée.¹

It was observed that the pain apparently started just below the tendo-oculi, and after its subsidence this spot remained tender. Partially inspired by this fact, and remembering the published successes of Badal² in the treatment of glaucoma and ciliary neuralgia by stretching and extirpation of the external nasal nerve, an operation of this kind was

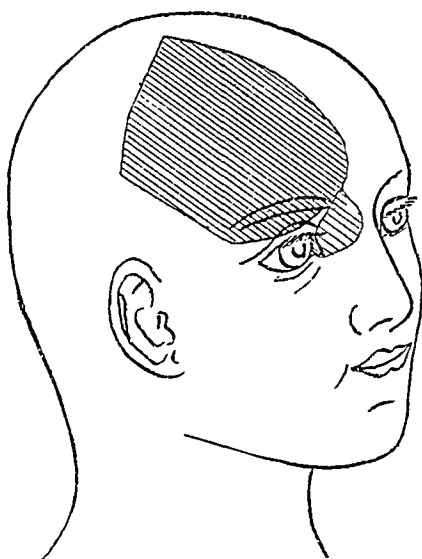
¹ It may be interesting to note that during the free administration of antipyrin the patient was seized with a sharp attack of dysentery, abdominal pain, tenesmus, and frequent bloody stools.

² Traitement de douleurs ciliaires par l'élongation du nerf nasal externe. *Ann. d'ocul.*, Brux., 1882, lxxxviii. 241-253.

the 28th of June, the pain returned. At first this was less violent than formerly, but soon returned with all its severe and usual characters and also its tendency to appear about 10 in the morning and 7 in the evening.

Experiments now elicited the fact that if at the beginning of an attack a hypodermatic of half grain of cocaine was injected along the course of the supraorbital nerve the pain would be distinctly allayed, although it would return after the effects of the drug had passed away. This led to the second operation of stretching and excising a portion of the supraorbital nerve on August 9th. A period of relief again occurred, but precisely seven days later, viz., August 16th, a slight but still decided pain appeared, and two days later an intensely severe one. Disappointed at the very limited result of this operation and also noting the small area of anaesthesia which had resulted (an oval patch just above the brow) it was thought that probably a branch and not the main stem of the nerve had been secured. Hence the incision was renewed and a careful dissection made down to the foramen, where the nerve was seized, dragged forward and cut off, and then dissected up for two inches and excised. For two weeks there was an entire absence of attacks, but on the fourteenth day a slight pain occurred, and four days later a severe one. Thus the tendency for these attacks to return on the seventh or multiple of a seventh day was again manifested. From this time on, however, this

FIG. 2.



Shaded portion represents the area of anaesthesia after excision of the supratrochlear and supraorbital nerves.

rule was not strictly adhered to and the type occasionally varied, as an examination of the accompanying chart, which represents the pain periods during the one hundred and thirty-four days, will show. It will be seen that pains appeared upon the fifth, sixth, and eighth days, as well as upon seventh days.¹

¹ At the present time the type has been reestablished and the pains occur weekly, just seven days almost to the hour elapsing between each pain.

The condition of the atmosphere and the changes of the weather have no influence in the production or absence of pain in this woman.

Even after the violent ciliary neuralgia that this patient has suffered and in spite of the scar tissue in the cornea, the vision remains fairly good. At its best it is $\frac{15}{XL}$; three hours after an attack $\frac{15}{LXX}$, while during a pain-period acuity of sight is reduced to the mere perception of large objects. The field is as has already been described.

The mental condition is excellent, the memory entirely unimpaired. The knee-jerks are perfectly normal. There is no region of impaired muscular ability or unequal muscular energy. Hyperæsthesia and anæsthesia are absent, except the area of anæsthesia which followed the nerve section. The blood has been examined before, during, and after pain-periods in order to determine the presence or absence of the microorganisms peculiar to malaria. These examinations have been entirely negative. Dr. Osler and Dr. G. Dock kindly aided in this investigation. The blood had not only been taken in the usual manner from the finger, but recently we introduced a sterilized hypodermatic needle into the spleen, after the manner described by Dr. Councilman,¹ without discovering any evidences of chronic malarial poisoning. Repeated examinations of the urine have yielded a specific gravity varying from 1.012 to 1.022; the entire absence of albumen and sugar; a sediment negative, except upon one occasion, when a few small hyaline casts were discovered.

Our colleague, Dr. John Musser, has kindly examined the heart and splenic area and reports as follows: High tension, relative accentuation of the second sound, hypertrophy of the left ventricle and two systolic exocardial friction murmurs. Loud venous hum in the neck. Spleen not enlarged. A thorough inspection of the naso-pharynx by Dr. E. Martin revealed the parts in a fairly normal state; this is especially true of the left side. Upon the right side a small hypertrophy projects into the nasal cavity. The sense of smell is less acute upon this side. The upper jaw contains no teeth except two fragments—the remains of canine teeth. In the lower jaw the incisors, canine, and two bicuspids remain, and are not carious. The gums are not tender in any place, and there are no appearances of such morbid processes as the late Prof. Gross has described to be a cause of neuralgia. The tongue is clean, the appetite good, the digestion unimpaired. There is no evidence of hepatic derangement.

Dr. B. C. Hirst has made a utero-vaginal examination and reports the condition perfectly normal for the patient's time of life; the uterus and broad ligaments are healthy, the ovaries unrecognizable. The temperature usually varies from 97° to 100.2°, and this variation has never conformed to any regular type. This character of temperature, occasionally slightly above the norm and again below it, is, we think, always present. It has certainly always appeared whenever any thermometrical records have been made.

It has seemed to be the part of wisdom simply to present the report of this case without entering upon any theoretical considerations, for the

¹ Lecture to Path. Soc. of Phila., Oct. 17, 1887. Further Investigations with the Corpuscle of Laveran.

good and sufficient reasons that seven years of theorizing and experiment have failed to achieve any very brilliant results. Quite naturally the malarial origin of this disorder has been discussed, but it certainly falls in the light of the failure of therapeutic tests and the examination of the blood.

The possibility that this is a form of rheumatic or gouty neuritis is deserving of respect. But inasmuch as there is an absence of any rheumatic history, of any symptom indicating a lithæmic diathesis, and, to a less degree, as there was no response to anti-rheumatic treatment, it seems an untenable position. Prosopalgia, of the most violent type, has certainly followed the pressure of growths upon the Gasserian ganglion, and in a case by Laveran a fibrous degeneration of the ganglion itself was the cause of the pain. It is difficult, however, to accept this explanation in the face of the history of this disorder, beginning, as it did, in a cicatrix in a region under the supply of spinal nerves, necessitating, moreover, as it does, the belief that first the left and then the right ganglion were respectively the seats of disease.

The idea that these pains may be due to a disorder of the sympathetic nervous system and depend upon derangement of the vasomotor tonus presents to us, we confess, many attractions. Dr. Wood has pertinently remarked, "These severer forms of prosopalgia are capable of being arranged in two groups—those in which a lesion can and those in which it cannot be demonstrated." This is certainly one of the forms in which, thus far, it has not been demonstrated.

LOCALIZED UNILATERAL SWEATING IN THORACIC ANEURISM.¹

BY R. L. MACDONNELL, B.A., M.D.,

PROFESSOR OF HYGIENE IN MCGILL UNIVERSITY; PHYSICIAN TO THE MONTREAL GENERAL HOSPITAL.

THE object of this paper is to bring before the notice of the profession a symptom of thoracic aneurism, previously unobserved—localized sweating over an area corresponding to the distribution of those intercostal nerves which were thought to have been pressed upon by the tumor.

Johnson, æt. sixty-two, colored, a barber by trade, was admitted into No. 11 ward of the Montreal General Hospital on the 31st of December, 1885, complaining of severe pain in the epigastrium and dyspnœa upon exertion.

This pain began six years ago in the left side of the chest, where it is

¹ Part of a paper read before the Canada Medical Association, at Hamilton, Ontario, 1887.

still sometimes felt, and gradually worked its way to the present site. The patient can remember, too, having suffered from pain in the side, occasionally, as long as twenty-five years ago, but does not think it was exactly the same kind of pain. Of late years, though it has varied in intensity, yet it has never been absent. It was a stabbing pain in paroxysms lasting about half an hour, and was accompanied by attacks of retching and by dizziness, so that it was regarded at one time as dyspepsia, at another as a bilious attack. Latterly it had become very severe, so that he was obliged to seek relief at the hospital. Dyspnœa on exertion was first experienced about one year ago, and has been gradually becoming worse ever since. During the last two months a sense of suffocation has prevented his sleeping upon either side.

Palpitation, syncopal attacks, or œdema of the feet, have never been present, nor has he ever suffered from severe cough, hæmoptysis, or night sweats.

The patient has never had to gain his living by hard manual labor, and has always been very temperate. Has never had syphilis. His family, five in number, show no sign of constitutional disease. His father died at twenty-four, cause unknown; mother lived to eighty, dying of old age.

Present condition.—The patient, who is above the average height, presents a fairly healthy appearance. Lately he has been losing weight and his voice has been husky and weak for the last four years. The muscles, though not highly developed, are in a state of fair nutrition. The skin is dry and scaly, the countenance expressive of dyspnœa, and there is inability to lie down with comfort. The pupils are of normal size and not unequal. There are no superficial venous enlargements, but pulsation is visible in the arteries of the neck and upper extremities. The most prominent symptom is pain in the chest, always in the left side, in the neighborhood of the fifth and sixth ribs, usually much worse at night, and occasionally felt shooting down the inner side of the left arm, but not so severely now as formerly. The pain is unaffected by breathing, coughing, or by movements of the arm or trunk. A slight cough with a small amount of mucous expectoration is present. There is constant dyspnœa, which is greatly aggravated at night, and owing to which he is almost entirely deprived of sleep, but during the day he dozes frequently and is at all times more or less drowsy. The temperature is normal, the pulse of a decidedly collapsing character, 80, regular, and not unequal on the two sides.

Physical signs.—The upper part of the chest, particularly on the right side close to the manubrium, is prominent and there is a heaving impulse over this region generally, and very extensive pulsation in the epigastrium. The apex of the heart has undergone outward displacement to the nipple line, and beats forcibly but regularly between the fifth and sixth ribs. No impulse or vocal fremitus is communicated to the hand placed over the prominence at the upper part of the chest. No tugging at the trachea synchronous with the heart's systole can be felt. In the left interscapular region, over an area limited above by the spine of the scapula and below by its angle, there is a remarkable prominence of the chest wall which is distinctly pulsating, and over which a heaving impulse is plainly felt.

The percussion note is clear over the front of the chest, except just over the right border of the manubrium, where there is a dull area cor-

responding to the above-mentioned prominence. At the apex no murmur can be heard, nor is any cardiac sound propagated in the direction of the left axilla, but at the base there is a loud rasping double murmur which is transmitted up and down the sternum. The maximum intensity of the systolic murmur is at the aortic cartilage, while that of the diastolic sound is at the lower end of the sternum.

Posteriorly there is a distinct bulging of the chest wall. In the left interscapular region there is also visible pulsation, but no thrill or perceptible vocal fremitus. The pulsating area is dull on percussion and occupies that portion of the interscapular region corresponding to the third, fourth, fifth, and sixth ribs. Over this area a faint systolic murmur can be heard. The base of the left lung is dull nearly as high as the angle of the scapula. The breath sounds at the back are weak generally, but particularly in the left lung, where expiration is prolonged. Over the lower part of this lung breath sounds are absent.

The digestive functions are properly performed, the appetite fair, the bowels regular, but occasionally attacks of pain at the epigastrium with pyrosis are experienced. The liver and spleen are of normal size. The urine is healthy.

Treatment.—On admission and for two months afterward he was obliged to remain in bed in a sitting posture, but after that he was able to lie down and afterward to move about the ward. Iodide of potash in ten grain doses three times a day has been given from the day of admission, December 31, 1885, to date. No particular restrictions as to diet have been made.

So far, then, we have distinct evidence that a solid pulsating tumor occupies a large portion of the chest, and we believe it to be an aneurism of the descending aorta, probably involving the arch also, interfering with the cardiac plexus, the pneumogastric and recurrent laryngeal nerves, as shown by the anginal attacks, and the hoarseness and weakness of the voice. The œsophagus escaped pressure, as it usually does. Atheromatous changes similar to those which originally weakened the aorta have rendered incompetent the aortic valves, probably by producing general enlargement of the aorta, separating the edges of the valves and bringing about the compensatory hypertrophy of the heart muscle. The unsupported column of blood in the great vessels suddenly drops after each systole, empties rapidly the arterics, and gives rise to the collapsing character of the pulse. Anæmia of the brain, induced by this cause, shows itself by the drowsy condition of the patient by day, though the pain and the dyspnœa keep him awake at night. The enlarged aorta is probably pressing upon the trachea and left bronchus, partially cutting off the supply of air to the left lung, and the return of blood by the left pulmonary veins is interfered with, the breathing being weak on the left side and breath sounds absent at the left base. Pressure on the intercostal nerves of the left side is shown by the continual presence of pain of a neuralgic kind in the left breast, occasionally passing along the inner side of the arm by transference to the nerve of Wrisberg. Erosion of the ribs and vertebral column has taken place.

For the first six weeks in hospital the condition remained in the main unchanged. There was generally very severe pain complained of at the seat of the aneurism posteriorly, and on several nights sharp anginal attacks had occurred. On the 17th of February, 1886, it was first noticed by the clinical clerk that there was *localized sweating* over an

area on the left chest wall, which corresponded more or less accurately with the course of the fifth and sixth ribs. The skin generally was unusually harsh and dry, but over this area there was continuously an oozing of perspiration which could be both seen and felt. At intervals this sweating was present from the day when first noticed up to the middle of May, and did not seem to be dependent upon or coincident with the attacks of pain and dyspnoea, though the patient noticed that he has been free from pain since the sweating ceased, nor could it be determined that it had occurred more copiously at one time than another. Several other nervous manifestations were also observed. On the 5th of April a sudden attack of severe and continued tremor in the left leg set in, which lasted altogether about twenty minutes, and was accompanied by nearly total loss of sensation over the whole body, and after this tremor had subsided analgesia of the left side remained and was present up to the time of his leaving the hospital in June.

Any record of the occurrence of localized unilateral sweating in thoracic aneurism is unknown to me. The cause is not very difficult to conjecture, that with such a large tumor pressing upon and eroding the dorsal vertebræ there must be pressure upon the origin of the intercostal nerves is safe to assume. But it is a question in physiology whether ordinary irritation of a mixed spinal nerve can produce sweating in the distribution of that nerve. Physiologists hold that inasmuch as there is a sweating centre in the medulla oblongata from which fibres are sent along the ordinary mixed nerves, sweating can be induced by direct or reflex stimulation of these nerves in an animal. On these grounds we may assume that the sweating of our patient is the result either of direct or reflex stimulation of the intercostal nerves which supply the area over which the sweating was observed. Moreover, this area corresponded to the distribution of the nerves nearest the centre of the tumor, and for that reason the structures most likely to be subject to pressure.

The other nervous symptoms I am inclined to attribute to anæmia of the nerve centres induced by the regurgitation at the aortic orifice, an effect not uncommonly observed in connection with that condition.

Johnson left the hospital in June, 1886, and owing to my absence from Montreal was lost sight of. On my return in September I made inquiries in various directions without success, but in the April of this year his wife came to ask me to see him. The old man whom I had given up as dead was now keeping a restaurant, and though the active part of the business was conducted by his wife and daughters, he was able to take a share in it. After leaving the hospital in June, 1886, he found himself very much better and able to walk no inconsiderable distances. He has been taking thirty grains of iodide of potash daily almost uninterruptedly since he left the hospital, getting the old bottle filled in the dispensary department. The urgent symptoms had left him, so that for the ten months he had no necessity for seeking advice, although the pain in the side has been severe at times and always has returned to the old site. Shortly after his return home the feet had become swollen and remained so, but for a few weeks. Had slept fairly

—that is, for three or four hours at night, and, perhaps, as many in the day—and been able once more to lie upon either side. The appetite has been good and digestion no longer troublesome—in short, he felt so well that he asked my advice as to the advisability of accepting employment in the Pullman Car Company.

Improvement was evident in the physical signs. The prominence at the upper end of the sternum was still there, but there was no visible pulsation, except in the epigastrium. Posteriorly, where pulsation had been so strongly evident, it was now barely visible, and that, over an area in diameter of about one inch situated just below the spine of the scapula. No bulging was perceptible, vocal resonance diminished. Dull area of the tumor extended from the spine to the angle of the scapula. At the base of the lungs breath sounds were weak, but there was no dulness.

This case illustrates admirably the benefit to be obtained from iodide of potash. There was no rest in bed, no restriction in diet, nothing was done for the man for the last sixteen months but to administer regularly and persistently iodide of potash with the effect described of relieving symptoms and of reducing the size of the tumor.¹

CHRONIC PYELITIS,

SUCCESSFULLY TREATED BY KOLPO-URETERO-CYSTOTOMY. IRRIGATION OF THE PELVIS OF THE KIDNEY, AND INTRAVAGINAL DRAINAGE.²

BY NATHAN BOZEMAN, M.D.,

SURGEON TO THE WOMAN'S HOSPITAL OF THE STATE OF NEW YORK.

I PRESENTED to the Ninth International Medical Congress a paper entitled "The Gradual Preparatory Treatment of the Complications of Urinary and Fecal Fistulæ in Women, including a Special Consideration of the Treatment of Pyelitis by a New Method and the Prevention of the Evils of Incontinence of Urine by a New System of Drainage." In this communication, I reported at length the history of a case of pyelitis which occurred as a complication of a large urinary fistula involving the urethra, uterus, and both ureters, and described its successful treatment by irrigation of the pelvis of the kidney. I also briefly alluded to the extension of the method to the treatment of a case of pyelitis not associated with a fistulous opening in the bladder, and stated that the orifice of the ureter was exposed by an operation which I ventured to name kolpo-uretero-cystotomy. My purpose is now to report more fully this latter case, to describe the operation, and to show the

¹ Dec. 2, 1887, Johnson is still alive, his general condition unchanged.

² Read in substance before the New York State Medical Association, September 27, 1887. The publication of the paper has been delayed until the completion of the treatment of the case.

application of intravaginal drainage to the treatment of the resulting incontinence of urine. To this I will add an analysis of my first, as well as my second case, together with such observations on disease of the urinary organs in women as seem appropriate.

In the paper referred to, I showed that in the treatment of cases of urinary fistula by the use of intravaginal drainage, by means of an instrument which I had recently devised, I was able to conduct away the urine from the bladder, and to prevent its contact with the vaginal mucous membrane and the integument of the external genitals, and surrounding parts. But as this description of the method has not yet been published, a short account of the principle upon which the action of the instrument depends is necessary in order to understand its use in the case to be reported. The essential part of the instrument is a hard-rubber or metal drain which fits in the vagina and is connected by a soft-rubber tube to a bag or urinal attached to the thigh near the knee. Its upper surface, which corresponds with the vesico-vaginal septum, is grooved or made concave and perforated by a number of small openings in such a manner that one or more of them must come in apposition with the fistula. The efficiency of the instrument depends upon the adaptation of the vagina to the form of any rounded body placed in its interior. The vaginal mucous membrane clings closely to the instrument and blocks up all the openings on its upper surface except those opposite to the fistula. So intimate is this contact, that sometimes an imprint of the upper or cribriform surface of the drain is left on the anterior vaginal wall and teat-like processes of mucous membrane, corresponding in size and position with the openings, are formed. The margins of the fistula are accurately applied to the instrument, and the defect in the septum is supplied by its upper surface. All communication between the bladder and vagina and every other avenue of escape being in this way shut off, the urine passes through the perforations into the interior of the instrument and is conducted by the tube into the urinal. The urine is thus drained directly from the bladder and does not come in contact with the vaginal mucous membrane. The vagina, therefore, is not drained and the designation, intravaginal drainage, is intended merely to suggest the use of an instrument placed within the vagina in order to conduct away the urine from the bladder.

The drain may have various shapes to adapt it to the peculiarities of the vagina in individual instances, or in order to subserve other purposes in combination with drainage, as, for example, support of the uterus or dilatation of the vagina. I have described several forms of the instrument and endeavored to give them distinctive names. In the treatment of the case to be presently reported, I used, for the greater part of the time, what I call a utero-vesical drainage support (Fig. 5).

It is a simple and convenient form and is especially applicable to cases where an opening is made in the bladder for the purpose of draining that organ or of exposing the orifice of one of the ureters.

CASE.—Mrs. B., aged thirty-four, was admitted into the Woman's Hospital on Feb. 27, 1887. She had borne five children and had had no miscarriages. Her labors were normal. Two years and a half ago, after having been married ten years, she became a widow. In the fourth month of her last pregnancy, about three years before I first saw her, she began to suffer from pain in the right lumbar region, and this symptom had continued and was growing worse at the time when she was admitted into the hospital. She described the pain as variable in character and aggravated by exercise; at times it was acute and radiated to the groin and down the thigh toward the knee; more frequently, the pain was dull and constant and confined to the lumbar region. Her urine had been for two and a half years and was still almost constantly stained with blood, which was sometimes present in sufficient quantity to cause a thick deposit at the bottom of the vessel.

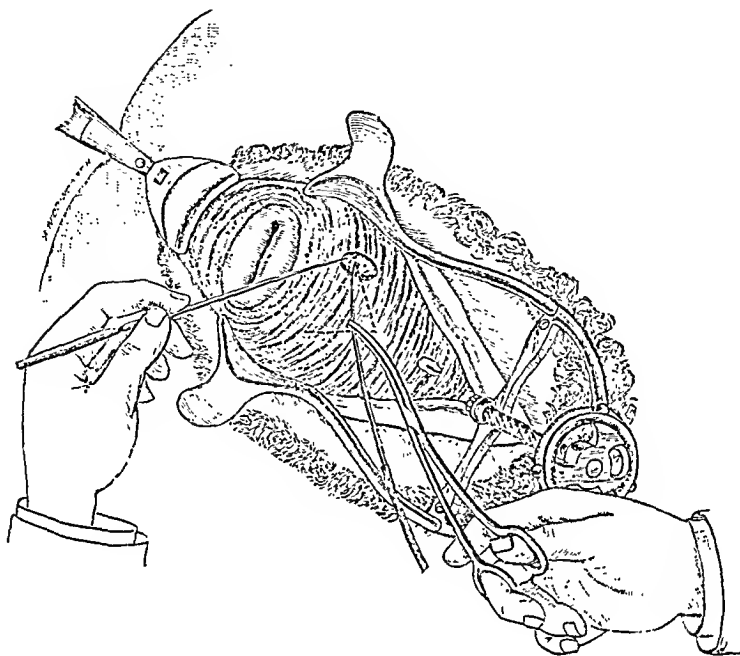
In the course of her illness, the patient also complained of frequent urination and vesical tenesmus, and suffered from dizziness, headache, cold hands and feet, loss of appetite, and nausea and vomiting; her general health depreciated, and she lost flesh and strength. She was confined to bed for six weeks by a severe illness, which began in November of last year. At this time she suffered from partial suppression of urine, severe paroxysms of pain, nausea and vomiting, and high fever. In the course of this attack she found two calculi in her urine; the first was an inch and a half long and about the size of a slate pencil; the second was broken into several pieces. The hæmaturia ceased before the passage of the second calculus, but at the end of five days the urine again became bloody.

On admission she was much emaciated; her complexion was sallow, and her mucous membranes very pale. She was extremely weak, and suffering almost constant pain in the region of the right kidney. The urine was of a reddish color, acid in reaction, contained albumen, and deposited a thick sediment consisting of blood and pus. The uterus was large, retroverted, and slightly prolapsed. During the month following, I made two examinations of the bladder, but discovered nothing of importance, and failed in two attempts to pass a probe into the ureter. The effect of the exploration of the bladder through the urethra in both instances was to cause an acute exacerbation of the chronic cystitis which was present.

On May 6th the patient was anesthetized, placed on the left side, and the anterior wall of the vagina exposed and made tense by means of my dilating speculum and perineal elevator (Fig. 1). The point of a narrow-bladed scalpel, mounted in a long handle, was made to enter the mucous membrane on the right side, about one inch and a quarter below the cervix uteri, and three-quarters of an inch away from the median line and a circular piece of the septum was removed, forming an opening into the bladder sufficiently large to admit the index finger.¹ The orifice

¹ The orifice of the ureter is normally situated about one and a quarter inches below the cervix uteri, but in this case, in consequence of the retroversion of the uterus, there was an anterior displacement of the cervix, and an apparent shortening of the space.

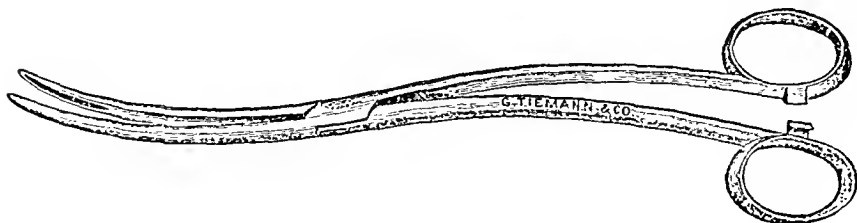
of the ureter was then discovered, and bloody urine was seen issuing from it. The vesical and vaginal mucous membranes were brought

FIG 1.¹

The opening at the right ureteral angle of the trigone of the bladder, the result of the operation of kolpo-uretero-cystotomy, and the method of catheterizing the ureter. (Left lateral position.) The advantages of transverse dilatation of the vagina, for work of this kind, are well shown in the figure. The folds of the anterior wall are obliterated, the septum is rendered tense, the fistula is perfectly displayed, and easy access to the orifice of the ureter secured.

together at the border of the opening with a continuous catgut suture. A No. 8 French olive-tip catheter was then passed into the ureter

FIG. 2.



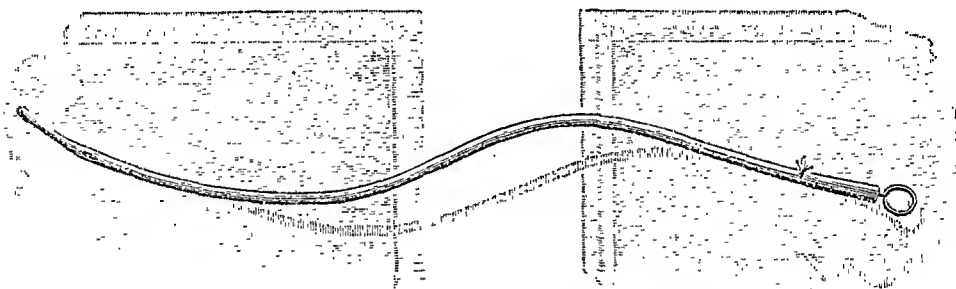
My uterine forceps.

The blades are shown partly open in order to display their short concave inner surfaces, which make it possible to seize the catheter longitudinally. The catheter lies in the groove between the blades, and its tip extends forward in nearly a straight line. This is a great advantage in introducing the instrument into the orifice of the ureter. Afterward it may be seized more nearly transversely, as shown in the figure.

¹ Figures 1, 6, 7, and 9, are from drawings made by my friend Dr John Aspell, a member of the house staff of the Woman's Hospital. I am greatly indebted to him for the skill and accuracy with which they were executed.

and entered the pelvis of the kidney without meeting any obstruction.¹ Warm water was now injected through the catheter by means of a small piston syringe. About a drachm at a time was forced into the pelvis of the kidney and then allowed to escape. The irrigation was continued until the fluid which came away was free from blood. The catheter was left in place for thirty-six hours, and the urine was collected as it flowed directly from the pelvis of the kidney. When examined by Dr. Coe, the pathologist of the hospital, it was found to be alkaline in reaction, and to contain a large proportion of blood, pus, and crystals of triple phosphates. Bacteria were also present in great numbers. A week later the catheter was again introduced, and allowed to remain twenty-four hours. Its continued presence in both instances occasioned nausea and vomiting, and a good deal of paroxysmal pain. After its removal, the catheter retained the peculiar form imparted to it by the course of the ureter. It presented two curves the convexities of which were in opposite directions and in different planes; in other words, it had assumed

FIG. 3.

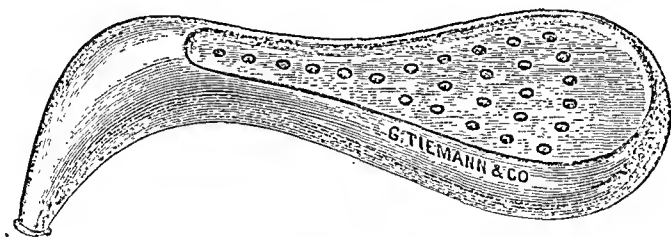


Spiral curve imparted to the catheter by the course of the ureter.

a spiral form. A stilet was shaped to fit the catheter in order to preserve its peculiar curvature (Fig. 3).

On the day following the operation a drainage instrument was intro-

FIG. 4.



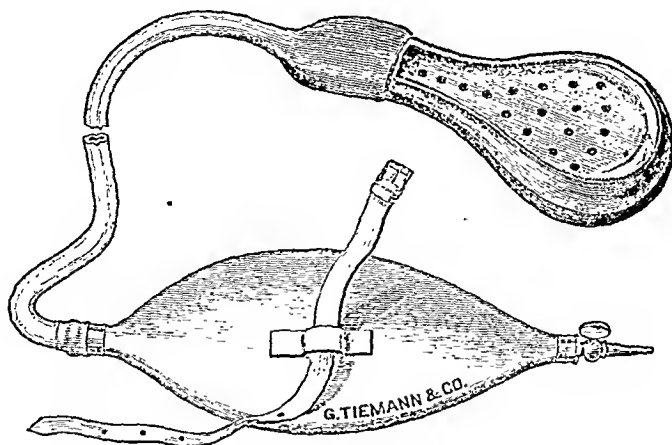
Utero-vesico-urethral drainage support.

duced into the vagina. The utero-vesico-urethral drainage support (Fig. 4) was used as long as the patient was confined to bed. After-

¹ The best instruments are those made by Vernas, of Paris. I now explore the ureter with a filiform bougie before passing a catheter. Unless the symptoms are urgent, further experience leads me to advise a delay of ten days or two weeks after the opening in the bladder has been made before beginning the treatment of the pelvis of the kidney. Time is thus allowed for the swelling and tenderness about the orifice of the ureter to subside, and catheterization is more easy and less painful.

ward, the utero-vesical form (Fig. 5) was employed, because the former, while being better suited for the recumbent position, in consequence of

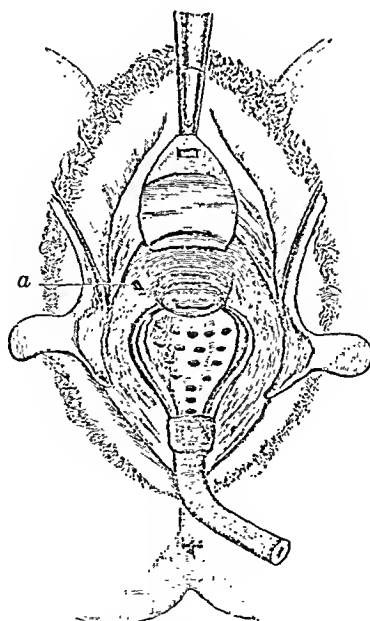
FIG. 5.



Utero-vesical drainage support.

its greater length extended beyond the vulva, and interfered with sitting. From the first, the drainage was satisfactory, and the presence of the

FIG. 6.



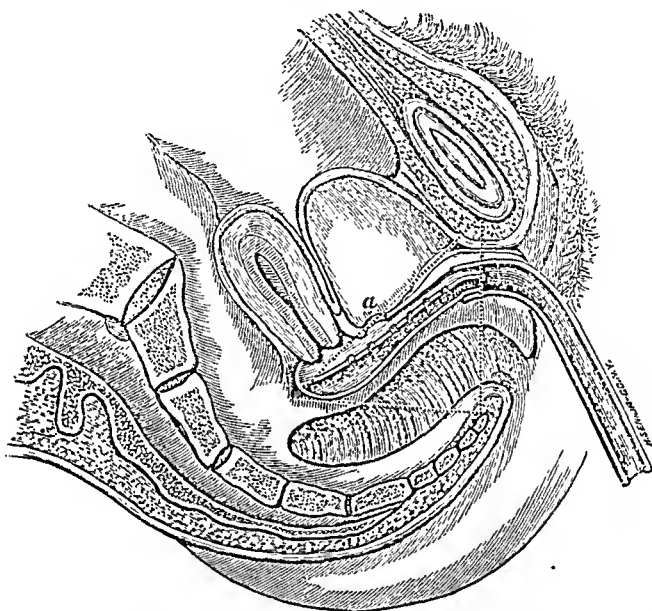
The utero-vesical drainage support in place. (Front view dorsal position.)

The perineum is depressed, and the anterior wall is lifted up to expose the interior of the vagina, and to show the relations of the fistulous opening (a) and the cervix uteri to the instrument.

instrument in the vagina caused no discomfort or inconvenience. When the patient was sitting or standing, all the urine was collected, and none

escaped into the vagina; in the horizontal position a little was lost, but the quantity was not sufficient to cause discomfort or to excite vaginitis. In consequence of their relation to the cervix uteri and posterior *cul-de-sac*, two unexpected results followed the employment of either of the forms of the instrument. The menstrual blood was drained directly from the uterus, and the fundus, which was retroverted and prolapsed, was restored to its normal position by the presence of the rounded upper extremity of the drainage support (see Figs. 6 and 7).

FIG. 7.



Diagrammatic section in the dorsal position, showing the relation of the utero-vesical drainage support to the fistula (a), the vesico-vaginal septum, cervix uteri, and posterior *cul-de-sac* of the vagina. The dotted triangle is introduced to show the upward inclination of the instrument when the patient is lying down. It makes an angle of about thirty-five degrees with the horizon. This fact explains the less perfect drainage secured in this position.

The vesical and vaginal mucous membranes having united at the border of the opening by first intention, ten days after the operation, systematic treatment of the pyelitis was begun. Every day a flexible olive-tip catheter was passed into the ureter, and the pelvis of the kidney was irrigated with a warm solution of bichloride of mercury, 1:20,000.

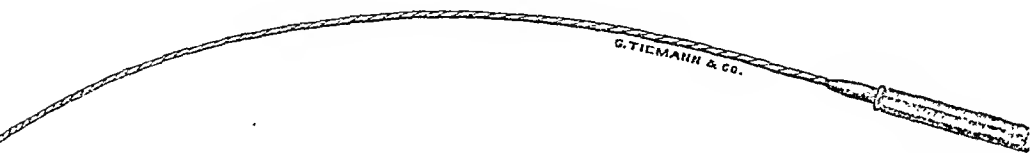
The most convenient mode of introducing the catheter was found to be the one shown in Fig. 1; when done in this manner no difficulty was experienced. A rubber tube was attached to the lower extremity of the catheter, in order to lengthen the instrument, and to connect it to the nozzle of the syringe more readily. A small hard-rubber syringe was used. At first I injected only about one drachm at a time; afterward, I found that the best guide as to the quantity of fluid which should be injected, was the sensation of the patient. Whenever the pelvis of the

kidney was distended, a peculiar and characteristic pain was felt; the fluid was then allowed to escape, and the injection repeated until the washings were colorless and free from sediment. As the treatment progressed, the size of the catheter employed was gradually increased to a No. 13, and, if any useful purpose would have been served, I believe I could have dilated the ureter to a much larger size.

As a result of the spiral course of the ureter, the catheter as it entered rotated on a longitudinal axis. A given point on its surface, indicated by a mark, was seen to describe a complete circle. As the catheter passed toward the pelvis of the kidney, this point moved from right to left; and while the instrument was being withdrawn, the rotation took place in an opposite direction. I have verified this observation in other cases and found that in the left ureter the direction of the rotation of the catheter is reversed. Whenever the catheter was passed, the urine retained in the pelvis of the kidney flowed out. The quantity thus removed was found to be variable. If the patient had been standing or walking immediately before the introduction of the catheter in the left lateral prone position, there was found little or no accumulation of urine in the pelvis of the kidney; if she had been lying down a considerable quantity was removed. At the beginning of the treatment, this was sometimes as much as fifteen drachms. I was also able to measure the capacity of the pelvis of the kidney. The injection of fluid was continued, as already described (but with a larger syringe), until the peculiar pain was felt. The fluid was then allowed to escape and measured. The capacity of the pelvis, determined in this manner, was at first twenty-one drachms, but was at last diminished to five drachms, which, from my observations in other cases, I believe to be about normal.

In the course of the treatment of the case, I had constructed a flexible renal sound (Fig. 8), made of a delicate ribbon of steel twisted into a

FIG. 8.



Renal sound.

cylindrical form of a suitable size and length. With this instrument, I was able to explore the ureter and pelvis more easily and thoroughly than with a catheter; a calculus would also be more easily detected by means of a metallic instrument; but no foreign body in the pelvis of the kidney was discovered by its use.

While the treatment was being carried out, the urine as it came from the pelvis of the kidney was frequently examined and the quantity of pus and blood which it contained was found to be gradually diminishing. At the end of three weeks, the urine was perfectly clear and deposited no sediment. On June 25th, about six weeks after irrigation of the pelvis of the kidney was begun, the following experiment was made: The bladder was douched. The catheter was then passed into the right ureter and a drainage instrument was placed in the vagina. The urine from the left kidney, as it was secreted, flowed into the bladder and was collected by the drain; that from the catheter was received in a vessel placed between the thighs. In this way it was possible to collect at the same time and in separate vessels the urine secreted by each kidney. At the end of two hours, three ounces of urine had been collected from the left kidney by the drainage instrument, and four ounces by catheter from the right. The result of the examination of the two specimens, made by Dr. Coe, shows that the pelvis had returned to a normal condition. It was as follows:

	Color.	Reaction.	Sp. gr.	Albumen.	Sediment.
Urine from left kidney . .	Straw.	Neutral.	1010	None.	None.
" " right " . .	Amber.	Acid.	1020	None.	An occasional leucocyte.

As the urine returned to a normal condition, the symptoms improved. The distressing pain in the right lumbar region entirely ceased and the patient gained appetite, flesh, and strength. I believed haste in closing the opening in the bladder unnecessary, because by the use of the utero-vesical drainage support all discomfort from incontinence of urine was prevented. She was, therefore, sent home and instructed to return for the operation when her health and strength were entirely restored. She wrote me, August 12th, the following account of her condition:

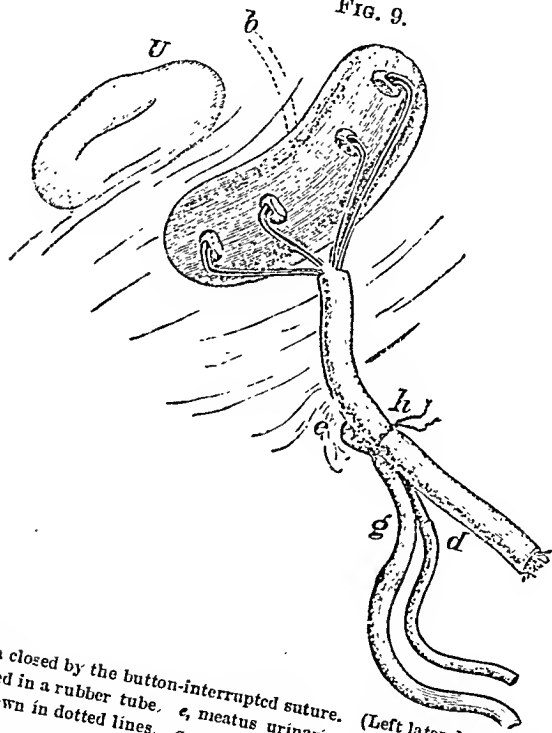
"The drainage works perfectly, there is no escape of urine except sometimes a little while lying down. I do not suffer from any irritation whatever. The instrument keeps the uterus in position. I have not suffered any pain in the kidney. I feel better than I have for years. I have just weighed, so will acquaint you with the numbers, 109 pounds, having gained 19 pounds in three months, that is, since the operation. I am able to attend church services. I can either ride or walk, neither gives me any uneasiness. My friends look at me and speak of my improvement with astonishment."

The patient returned to the hospital on November 8th for the closure of the artificial fistula. She had been entirely free from pain since her discharge, had gained twenty-five pounds in weight, and become strong and well. On examination, the vagina and vulva were found to be in a healthy condition. Almost all the urine had been drained from the bladder and the normal position of the uterus maintained by the drainage support.

On the day of her return a No. 13 (French) catheter was passed into the pelvis of the kidney and allowed to remain four hours. The urine drawn off by the instrument was entirely free from pus. During the night following the use of the catheter, the patient suffered from pain in the loins and a feeling of soreness along the course of the ureter. The

next day pus and blood were found in the urine. A mild attack of cystitis, ureteritis, and pyelitis had been set up by the use of the catheter. The mischief probably resulted from the retention of too large an instrument in the ureter for so long a time. I thoughtlessly used the same catheter which had been employed six months before. The ureter was then dilated, meanwhile it had contracted and the instrument had become too large. Moreover, I did not pay as much attention to the cleansing and disinfection of the catheter as I should have done. A smaller instrument (No. 8 French) was, therefore, used in the subsequent treatment and care was taken to wash it thoroughly and to disinfect it with a solution of bichloride of mercury (1 to 1000).

FIG. 9.



The fistula closed by the button-interrupted suture. (Left lateral position.)
h, ends of sutures inclosed in a rubber tube. *e*, meatus urinarius. *U*, cervix uteri. *b*, lower part of ureter shown in dotted lines. *g*, vesical catheter. *d*, ureteral catheter.¹

The pain soon ceased, and after a few irrigations of the pelvis of the kidney, the urine again became normal. The operation for the closure

¹ The nreteral cathcter was not employed in this case. I have used it and advise its employment when the ureter forms a part of the border of the opening—i. e., in uretero-vaginal fistulae after their conversion into uretero-vesico-vaginal fistulae. In these cases, in order to prevent obstruction of the duct, its lower extremity should first be slit up on the vesical side for about one-fourth of an inch so as to turn its orifice into the bladder; before the fistula is closed a No. 4 flexible English catheter should be introduced into the ureter for five or six inches, and afterward secured in place by tying it to the ends of the sutures as is shown in the figure. It may be removed at the end of twelve hours after the operation. Care should also be taken to straddle the ureter—that is, to leave a sufficient interval between the sutures which lie on either side of its lower end. This method of dealing with the ureter is introduced here because if, in the operation of kolpo-uretero-cystotomy, the opening were by accident made too high up, the ureter would be involved in the fistula, and might become everted, as is always the case in uretero-vaginal fistulae.

of the opening in the bladder was, however, delayed for four weeks, until observation of the patient gave complete assurance of the subsidence of the inflammation.

On December 4th, the fistula was closed with the button-interrupted suture (Fig. 9). The line of coaptation measured about one and a half inches and four silver sutures were used. The second and third wires were passed half an inch apart so as to avoid all danger of obstructing the orifice of the ureter. The sutures were left long and their ends were enclosed in a rubber tube as shown in the figure. A No. 4 soft English catheter was placed in the bladder and secured in place by tying it to the wires opposite the meatus urinarius. The operation was followed during the first two or three days by a good deal of vesical tenesmus. The catheter was removed at the end of twelve hours. The urine was drawn and the bladder irrigated every six hours with a weak solution of boracic acid. Perfect union occurred. The sutures were removed at the end of seven days and the patient was allowed to get out of bed a week later. Some vesical irritability followed the operation, but it has gradually subsided.

On December 12th, examination showed that during the week following the operation, the fundus of the uterus had returned to its original position against the rectum, and the cervix became displaced toward the right, causing some distortion of the vesico-vaginal septum, and possibly some obstruction of the ureter. I believed that correction of the displacement was important in order to guard against recurrence of the cystitis and pyelitis. The vagina was, therefore, columned with dry cotton. After a few applications of the column my utero-vaginal support was introduced. The instrument kept the uterus in place satisfactorily; but the idea afterward occurred to me, that the use of the drainage support, which had held the uterus in position while the fistula remained open, might be continued (see Fig. 7). The experiment was accordingly tried, and it was found that the instrument was as efficient as a uterine support as ever. It held the uterus in position perfectly. I also discovered that when the openings in its cribriform surface were closed, the instrument tended to slip down and was no longer useful for this purpose. The drainage support was worn through the patient's last menstrual period. All the menstrual blood was collected by the instrument and conveyed to the rubber bag attached to the thigh in the same manner as before the fistula was closed. A smaller and more convenient receptacle might be employed to collect the menstrual fluid in menorrhagia.

The patient (January 11th), five weeks after the closure of the fistula, looks and feels perfectly well; the vesical and renal symptoms have all disappeared, and her urine is normal. She will, however, be kept under observation for a few days longer, in order to determine whether the correction of the uterine displacement by the use of the drainage support will be permanent.

(To be concluded.)

266 ADENO-SARCOMA OF DURA MATER SPINALIS.

A CASE OF ADENO-SARCOMA OF THE DURA MATER SPINALIS.

BY EUGENE HODENPYL, M.D.,
SECOND ASSISTANT IN THE LABORATORY OF THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS
AND SURGEONS, NEW YORK.

FOR the clinical history of this case I am indebted to Dr. C. R. Hexamer, House Physician, St. Francis Hospital, New York.

H. K., aged thirty-eight years, a native of Canada, a salesman, was admitted into the hospital July 18, 1887.

Family history: Negative.

Previous history: Patient said that up to the time of his present illness he had never been ill a day, except that he had had gonorrhœa once. He was a moderate drinker.

Present illness: About six months before admission he began to suffer from pain and soreness in the right side, which he located at a point one and a half inches above the anterior superior spine of the ilium; this he attributed to heavy lifting, to which he was unaccustomed. During the next three or four weeks the pain passed entirely around the body, causing the sensation of constriction, "as if I were wearing a belt." The pain was more marked while sitting than while standing. He now began to complain of "soreness" over the lower half of the spinal column. This sensation was apparently one of weakness rather than of actual pain. The pain in the right side gradually became more severe and constant, and finally extended to the left side. Patient had been in a number of hospitals, but was regarded as a malingerer.

On admission he walked into the hospital, and from his gait and carriage appeared to be perfectly well. He stated that two days before he first noticed a sensation of weakness in both legs; but, as he was able to walk, no especial attention was paid to it.

Physical examination of heart and lungs was negative, and there were no evidences of syphilis. Examination of urine was negative. Six days after admission he complained that he was no longer able to stand, and examination at this time showed that he was unable to place his feet without looking at them, and that on closing the eyes the body would sway, and he was liable to fall. There was neither cremasteric nor abdominal reflex. Patellar reflex was diminished on the right side, and on the left was about normal. The voluntary movements were slightly irregular in the legs, and he had no definite conception of their position, *i. e.*, when crossed, spread apart, etc. There was diminished sensation in the legs, and the capacity for voluntary movement became more and more diminished in the lower extremities until about the middle of August (or about seven months from the commencement of the symptoms), when both sensation and the power of movement became entirely lost.

He gradually lost control of the bladder and rectum. Throughout the course of the disease the mental condition remained good. Toward the end bedsores developed and spread rapidly in spite of treatment. During the last two weeks delirium was often present. Respiration and deglutition became difficult, and he died September 21st, exhausted.

Autopsy: Examination of the spinal cord only was permitted. The cord and its membranes were removed together. There were no gross lesions observed except at the level of the eighth and ninth dorsal vertebræ. Here was a new growth on the external surface of the dura mater which encircled the cord except on its anterior aspect. This tumor was somewhat rough on its external surface, and the contiguous vertebræ were roughened and eroded. The internal surface of the dura mater was of normal appearance. The spinal cord at that part, enclosed by the tumor, was narrowed to about two-thirds of its normal diameter. (See Fig. 1.)

Microscopical examination: The dura mater at the seat of the growth was moderately thickened, but was not unusually cellular. A large part of the tumor was composed of small spindle and small round cells closely packed together. Between the cells was a delicate connective-tissue stroma. This part of the tumor had the characteristics of a moderately dense sarcoma.

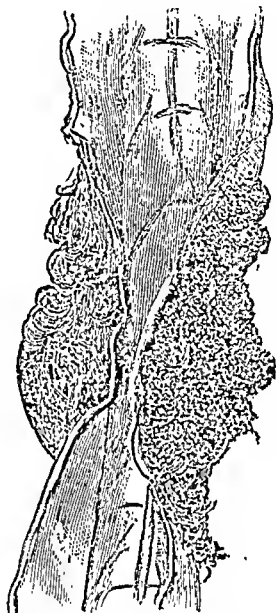
Some scattered portions of the tumor, making up at least one-third of its bulk, presented an entirely different structure. A series of tubules or long, narrow, irregular branching and occasionally anastomosing spaces were irregularly lined with polyhedral, cuboidal, or distinctly cylinder cells. A variable amount of rather loose, moderately cellular, connective tissue separated these gland-like structures from one another. (See Fig. 2.) Although distinctly glandular in type, there was, in places, an irregularity in the shape of these pseudo-acini which often rendered the interpretation of the pictures presented by the sections exceedingly puzzling. On the whole, however, the constant presence of a lumen and the irregularity, in many places, in the shape of the cells which surrounded it, stamped these parts of the growth as adenomatous.

Small irregular masses of osteoid tissue were scattered throughout the sarcomatous parts, especially in places where fibrous tissue was more abundant.

The tumor included one of the posterior spinal ganglia, which showed an increased amount of connective tissue in and about it, but the ganglion cells did not appear to be altered.

From the situation and condition of this tumor, as above described, it is difficult to say with certainty what its exact origin was; whether the external layer of the dura mater, the periosteum of the vertebræ, or the loose connective tissue which joins them. The tendency to formation of bone in the tumor would not be strongly indicative of its periossteal origin, since bone formation in the dura mater is not so very infrequent, and since, on the other hand, the periosteum was either primarily or secondarily involved. Aside from the practical importance

FIG. 1.



Tumor of dura mater spinalis with cord in situ. Natural size.

FIG 2.



A section from the adenomatous part of the tumor.

which attaches to all tumors of the spinal canal, this one seems to be of especial interest on account of the epithelial structures which so largely compose it.

It is difficult to account for the occurrence of a tumor of this character in this situation, except by Cohnheim's hypothesis of aberrant embryonic remains. The plausibility of this hypothesis is, in this case, enhanced by the occurrence of the tumor in a situation liable to irregularities in development during the formation and closure of the neural canal.

REVIEWS.

LEÇONS SUR LES FONCTIONS MOTRICES DU CERVEAU (REACTIONS VOLONTAIRES ET ORGANIQUES) ET SUR L'EPILEPSIE CÉRÉBRALE. Par le DR. FRANÇOIS-FRANCK, Professeur remplaçant au Collège de France; Cours du Collège de France, 1884, 1885. PRÉCÉDÉS D'UNE PRÉFACE, par PROF. CHARCOT. Pp. ix., 570. Paris: O. Doin, 1887.

LECTURES ON THE MOTOR FUNCTIONS OF THE BRAIN, AND ON CEREBRAL EPILEPSY. By PROF. FRANÇOIS-FRANCK; with a PREFACE by PROF. CHARCOT.

THIS work constitutes a very important addition to the existing physiological data regarding the motor functions of the brain. The facts which it contains are of a familiar kind, for they lie in the line of the discoveries of Fritsch and Hitzig, Ferrier, Munk, Luciani and Tamburini, and as mere facts present little that is new. Yet they are not without importance. For as Charcot remarks in the admirable preface, "it is necessary for proper reasoning, as well in the domain of experiment by vivisection as in that of clinical observation, to separate radically empirical facts, purely descriptive, concerning cerebral localization, from theories pertaining to the physiological action of the brain. The first constitute the foundation upon which all subsequent structures rest; they can remain by themselves, independent of the second, which are merely accessory; and we know that by their immediate application they have already led to most important practical results: for it is around these facts that the *local diagnosis* of brain disease centres, an ideal diagnosis, now at last often reached and toward which all the best efforts of clinicians are bent."

Nor are the facts here presented without interest. For the methods pursued in the investigations undertaken are new, the results reached being recorded by the graphic method, which not only eliminates the personal equation in observation, but puts before us the results in an attractive form easily grasped at a glance. Under the direction and inspiration of Prof. Marey, of the Collège de France, Prof. François-Franck has made many physiological researches, notably those upon vasomotor action, which have established his reputation as an original and reliable investigator; but nothing which he has yet produced can equal for precision the present work. And his physiological knowledge is supplemented by clinical experience, so that, as Charcot says, "in no other work on neuropathology can one see to the same degree experimentation on animals and clinical observation in man, keeping equal pace with one another, each controlling the other, and both tending to a common end." The work, therefore, deserves careful notice. The first lectures contain a review of German, English, and Italian investigations, and an account

of the method employed, both in exciting the brains of animals by electrical currents, and in recording the muscular movements obtained from such excitement by the graphic method. The motor area of the brain is located, as by other observers, in those convolutions of the lower animals which are homologous to the anterior and posterior central convolutions of man.

Franck does not localize motor centres as exactly as Ferrier, nor does he lay off limited areas for special movements, as has been recently done by Victor Horsley (*AMERICAN JOURNAL OF THE MEDICAL SCIENCES*, April, 1887). He is content to affirm that the lower, middle, and upper thirds or the motor area have a functional relation respectively with movements of the face, arm, and leg of the opposite side of the body, irritation of these areas by electricity causing muscular contractions in their related parts. From these motor centres fibres start downward, which pass through the centrum ovale and internal capsule, and in the pyramidal tract of the medulla and cord to the motor cells of the spinal cord, which in turn are connected with the muscles. These fibres can be excited by electricity, with the result of producing muscular contractions, but the cortical centres react to a weaker current than do the fibres beneath them. In the internal capsule distinct fasciculi could be excited, showing that each fasciculus was related to a different limb. When the basal ganglia were excited no muscular contractions were produced, a result which does not harmonize with that of other observers, especially Nothnagel. The further the impulse has to travel, the longer the time require to produce the muscular contraction—hence the time elapsing between the irritation and the movement is greater when the cortex is excited than when the centrum ovale is excited; and is greater for the leg centres than for the arm. This is well shown by the diagrams prepared by the aid of a chronograph, p. 34. A number of shocks, each of which is insufficient to cause a movement, will, if repeated at sufficiently short intervals, cause motion—a condition which he terms the cumulative action of the cortex (*phenomène de summation*, p. 51). But continued excitement of the cortex results in a state of fatigue in which it loses entirely its excitability. A unilateral irritation of the cortex may cause bilateral movements. In this case the impulse of irritation crosses the median line twice, once at the medulla in the motor decussation, the second time a part of it returns in the spinal cord through the anterior decussation, at the level of the segments excited. The unilateral irritation in the brain, therefore, may excite both halves of the spinal cord. All other explanations of this phenomenon (such as that the irritation of one hemisphere spreads to the other through commissural fibres of the corpus callosum) are shown to be wrong by a careful series of experiments.

The results of electrical excitement of the motor areas are very carefully compared with epileptic phenomena in eight lectures (8th to 16th). It is well known that irritation of the cortex by electric currents often causes a series of convulsions identical with the epileptic convulsions observed in man. Franck has observed the order of extension of the spasm when a single centre is irritated. He finds that it is not uniform, but that general convulsions never begin simultaneously in all extremities. He, therefore, concludes that there is no general "convulsive centre," in the pons, or elsewhere, irritation of which will cause an epileptic attack. After an animal has once had one general convulsion from cortical irritation, it becomes susceptible to a repetition, and slight

irritation, formerly without effect, will produce one. If the cortical irritation producing the fit has been very severe, the fit is often followed by a condition of cerebral excitement, in which evidences of hallucinations and delusions are observed, lasting several hours. After a general convulsion, started by irritating a local motor centre, the muscles with which that centre is related remain paralyzed for a time. A fit can be suspended by artificial asphyxia, or by cardiac arrest, produced by irritation of the pneumogastric nerve. The only region of the cortex irritation of which will produce an epileptic fit is the motor region. When this is excited with a strong electric current the fit begins within two seconds. Irritation in other areas may extend to the motor area, and then cause a fit; the time occupied in the extension is in proportion to the distance of the seat of irritation from the motor area. Irritation on the parietal convolutions may be followed by a general fit, forty to sixty seconds after the irritation is begun, showing that this time is required for the extension of the irritation to the motor area. Strong irritation in the occipital lobe will not cause a convulsion until after an animal has been made epileptic by previous irritation of the motor or adjacent areas. But if the motor zone has been extirpated, then irritation anywhere of any strength will not cause an epileptic fit. The application of a freezing mixture to the cortex, or the injection of chloral into the arteries of an animal, will prevent irritation of the cortex from producing a general convulsion. Irritation then produces a single contraction. Irritation of the centrum ovale or internal capsule never causes an epileptic convulsion. If weak, it produces a single contraction in the muscles. If strong, it causes a state of tetanus. And this is beautifully demonstrated by the graphic method, the tracing of muscular contractions during an epileptic fit being wholly different from that of muscular contractions in tetanus. All these motor effects are, however, considered as indirect in their production. The motor centres do not govern primarily the muscles, but do govern the motor mechanisms of the pons, medulla, and spinal cord, which are directly connected with the muscles. Hence, the conclusion that "the cortex acts in cortical epilepsy as the epileptic zone does in peripheral epilepsy; it gives the signal for the attack by provoking the activity of cellular elements in the pons and spinal cord; these latter act finally on their own account and are the true exciting centres for the production of convulsions and the agents of their generalization" (p. 118). Yet cortical epilepsy and reflex epilepsy differ. "In reflex epilepsy the attack is quite typical, the clonic type with large movements predominating; the attack never begins with tetanus similar to that occurring in cortical epilepsy; if the reflex attack shows a tonic period, it only comes on late as the evidence of a cumulative maximal excitement, usually it intervenes between two clonic periods, a succession which is never observed in cortical epilepsy. But these differential characteristics are, after all, not so important as to establish an essential difference between the attacks. The conditions producing the attack are different in the two cases, and the difference in the results depends upon this difference. When the cortex is excited by repeated shocks, there follows an initial tetanization of the muscles, which remain contracted for a moment after the irritation is suspended and then clonic convulsions ensue, the muscles having received the maximum irritation at once. On the contrary, in a case of reflex epilepsy the initial irritation consists in a traumatic irritation, or an electric

shock, not of a tetanizing degree, and the reaction does not reach its maximum at once; it seems as if in this case the spinal cord becomes progressively charged in order to manifest at least its most violent reaction, while in the case of cortical irritation the greatest charge is produced at once, and the reactions follow, decreasing as they occur; the nature and the mode of action of the provoking excitement determine the kind of reaction. Hence, reflex epilepsy does not differ essentially from cortical epilepsy (pp. 122-124). Any one who reads these lectures carefully, and at the same time bears in mind the phenomena observed in patients suffering either from Jacksonian epilepsy or from general epilepsy, cannot fail to be impressed with the immense importance of the facts observed as affording adequate explanation of the means of production of the epileptic condition. The predisposition of an epileptic patient to have a fit after any serious irritation, psychical, physical, internal or external, central or peripheral, is shown to have its analogue in the condition produced in an animal after it has been subjected to cortical experiments. The extension of spasms from one limb to another until all are convulsed, so characteristic of cortical epilepsy, is well displayed in the diagrams of the effects of cerebral irritation. And a strong argument in favor of the cortical theory of all epileptic attacks could be drawn from the facts recorded in detail in these lectures.

Ten lectures follow (17th to 26th) upon the effects of cerebral irritation upon the respiration, heart action, vaso-motor tone, pupillary contraction, secretion, and excretion. This is a field which has never before been so thoroughly and accurately investigated, and here, again, the great advantage of the application of the graphic method of recording results is evident. The respiratory action in epileptic attacks, the variations in vaso-motor tone and in the pupils, the state of the skin and amount of sweat, and the excretion of urine after an attack are subjects never before investigated experimentally. Franck concludes that there are no true "organic centres"—*i. e.*, centres governing the mechanisms of organic life—to be found in the cortex. Thus, in regard to vaso motor tone, while a contraction of the vaso-constrictors can be produced by stimulus applied anywhere to the motor zone of the cortex, such a contraction is equally manifested all over the body, is not unilateral or limited to the limb whose motor centres are stimulated.

In regard to the dilatation of the pupil, it is established that the intensity of the excitement of the cortex determines the degree of dilatation of the pupil. Hence, in a cortical epileptic fit the sudden discharge results in a sudden dilatation of the pupil, which lasts through the tonic and into the clonic stage of the fit, and then decreases gradually till it reaches the normal as the convulsions cease. If, however, the convulsions are to be followed by post-epileptic hallucinations or delirium, this contraction of the pupil does not occur. In a simple excitement of the cortex by a single electric shock the dilatation of the pupil is single and does not persist—it ceases as the excitement ceases. And by a careful series of experiments it is also shown that the action of the pupil is wholly independent of vaso-motor conditions, there being no constant relation between vaso-motor constriction and dilatation of the pupil.

In regard to secretion the results are equally exact, and it is demonstrated that the influence of cortical irritation on salivary secretion is

wholly indirect. The fallacy underlying Ferrier's reasoning that because irritation of a certain area caused a secretion of saliva, therefore this area contained the "gustatory centre," is fully exposed, although no discussion of sensory centres is attempted. The facts contained in these lectures are new and interesting, and should be carefully studied by physiologists.

In the four following lessons (27th to 30th) the effect of destructive lesions of the motor area upon the voluntary movements of the body is considered. "Here the analysis of experimental results yields the palm to clinical observations. While the clinique furnishes few facts regarding the result of cerebral excitement it abounds in observations when we pass on to the examination of effects produced by limited lesions. The study of paralysis in animals dependent on operations, without being devoid of interest, is inferior in every point of view to clinical studies. The reason is, because the lower animals cannot be properly compared to man; in one the cerebral influence is slight and loss of large areas of brain may pass almost unnoticed, in the other the division of labor is more complete. In man the consequences of local disease are presented with the greatest nicety, and the differentiation of function is more completely demonstrated. Hence, clinical observation is of more service in determining the effects of destructive lesions than are experiments"—a position in which Franck is supported by all German, Italian, and American observers, and to which Ferrier must be mentioned as alone objecting. Holding this opinion it is not strange that the lecturer treats this portion of his subject briefly and does not offer any novel facts—but gathers his data from the cases of Charcot and Pitres. In the remainder of the book the mechanical excitability of the cortex, influences which modify cortical excitability, and the various theories explanatory of the mode of action of the motor areas, together with the objections to those theories, are discussed, and an appendix of one hundred pages contains a résumé of the experiments upon which the results stated in the text are based.

The work, as a whole, will receive careful consideration. It is for the French school what Ferrier's work is for the English, and Munk's is for the German—a classical epoch-making production, full of accurate observation, original in its methods of recording results, and especially suggestive in its application of experimental conclusions to clinical facts.

M. A. S.

THE RECTUM AND ANUS: THEIR DISEASES AND TREATMENT. By CHARLES B. BALL, M.Ch. Univ. Dub., F.R.C.S.I.; Surgeon to Sir Patrick Dun's Hospital; University Examiner in Surgery; and Member of Surgical Court of Examiners, Royal College of Surgeons, Ireland. 16mo. pp. viii., 410. Philadelphia: Lea Brothers & Co.

WE have given this book careful examination, and are impressed by its excellence and value. It belongs to a series of handy manuals by British authors, none of which is superior to this one. Indeed, it is rare to meet with a book in which are so happily combined thoroughness

and compactness, minuteness of detail, and brevity of expression, and where yet the subject is presented in an agreeable and easy style.

Mr. Ball has had extended experience with rectal disorders, while at the same time he has been a close student of the writings of others. As a consequence he has produced a most instructive, as well as a most readable book.

He begins with a most excellent description of the method of examining the rectum, and with Mr. Ball it is a method of carefully considered and exactly appropriate manipulations, well suited to give the precise information which it is impossible to obtain without a digital examination, and that a careful one. We notice that in this preliminary chapter Mr. Ball gives a carefully guarded opinion as to the introduction of the whole hand into the rectum, a procedure which he properly holds should not be undertaken upon slight grounds, or under the impression that it is a trivial measure.

We have seen no better, more clearly conceived, or more distinctly written account of rectal malformations than that contained in the second chapter. It consists of a study of the embryological causes which are responsible for the defect, and a succinct account of some of the nine varieties into which these abnormalities have been classified by Papendorf, and which has generally been adopted by modern writers. Each variety is illustrated by a satisfactory cut, which makes the description given in the text plain.

We have noticed this chapter particularly, not on account of its practical importance, but rather as affording an instance of the thorough-going work which has been put into the book. Many other chapters might have been equally well selected, but coming across it first, and finding how fully and fairly the matter had been treated, we mention it as affording the readers of this journal information about the book to which but very partial justice can be done in the narrow limits of this notice.

In succession, the various ailments to which the rectum and anus are subject, are taken up, carefully and systematically treated, and amply illustrated by cuts and cases. These latter are most aptly introduced, being derived from the whole range of surgical literature, as well as from the experience of the author.

In speaking of stricture of the rectum, Mr. Ball directs attention to the fact that the tape-like form of the feces so constantly referred to in books, is of rather rare occurrence, and adopts the views of Van Buren and Kelsey, that it is only observed when the stricture, in the act of defecation, is extended beyond the anus. Ordinarily, when the seat of stricture is some distance above the anus, that orifice modifies the shape of the discharges, though they are usually in small fragments, owing to the fact that the rectum below the stricture is but partially filled. Our author thinks that this is analogous to the condition of things in stricture of the urethra, where the twisted stream so commonly seen is really caused by the partially collapsed condition of the meatus urinarius, which the flow of urine, impeded by the stricture above, fails to distend fully.

We might go on to pass in review many portions of this book, but enough has been said to show our estimate of it, and further than this it is beyond the scope of this necessarily brief notice. On almost every page will be found evidence of Mr. Ball's personal knowledge, extended

reading, and sound surgical judgment. The book has in it four colored lithographs and fifty-four illustrative woodcuts, and is well written. In short, we may safely commend this little volume as in every way worthy of a school which has ever been prolific in sound and able surgeons.

S. A.

PATHOLOGY AND TREATMENT OF RINGWORM. By GEORGE THIN, M.D.
8vo. pp. 87. London: J. & A. Churchill, 1887.

THE author states that it is his purpose "to describe the nature and peculiarities of the fungus causing the disease, the changes in the skin to which it gives rise, and the treatment most likely to succeed in destroying the parasite and the disease which it causes." The work (the greater part of which first appeared recently in the pages of the *Practitioner*) comes from the pen of one who is favorably known, and from whom we naturally expect thorough research in whatever is undertaken, and in this we are not disappointed in the book before us. It shows both a scientific and a practical spirit, and there is everywhere evidence that the author has made a careful study of the subject.

The first chapter treats of the fungus, and of a series of cultivation experiments, the author especially recommending the meat-gelatine preparation introduced by Koch, which he regards as the least troublesome and the most certain of all methods of cultivating the trichophyton. The habitat of the fungus is stated to be in the hairs, in the substance of the nails, in the horny layers of the epidermis, in the space between the inner root-sheath and the cuticle of the hair. There is no evidence that it exists or grows in the rete mucosum. As Küchenmeister long ago pointed out, it does not grow in living tissues.

Concerning the etiology of the disease, Dr. Thin's experience leads him to believe that ringworm of the head is more common in London than in any other large city. Interesting remarks on the question of contagion follow, especially in connection with the lower animals. We are entirely in accord with the views of the author when he says "the skin of different persons, and different parts of the skin of the same person, vary in their susceptibility for the growth of the fungus. It does not grow, except in extremely rare cases, in the scalp of adults, and it grows more freely in moist parts of the skin than in parts that are dry." Again, we think the author is right when he says, "the common idea that ringworm is associated with want of personal cleanliness is a mistaken one; dirt affords no pabulum for the growth of the trichophyton."

The pathology of the disease is regarded as a specific inflammation, its special characters depending on the effects produced on the blood-vessels of the cutis by the growth of the trichophyton in the horny layers of the epidermis and root-sheaths of the hairs. The histological changes which take place in ringworm of the scalp are fully entered into, the author on a previous occasion having done good work in this direction. Concerning the anatomical seat of the fungus, the views expressed so far back as 1855 by Küchenmeister are maintained, viz., that the parasite can only live and increase in the substance of the hair

itself and in the crusts which are found on the scalp, and that it is never found between the cells of the epidermis. Dr. F. Taylor, of London, holds the same opinion, which is in opposition to that of Dr. A. R. Robinson, of New York, who believes that conidia are even found in the perifollicular tissue.

On the subject of the treatment of ringworm of the scalp, the author's views are conservative and sound, as the following sentence will show: "The many vaunted specifics only too often leave the practitioner in the lurch. I am satisfied that the best way to avoid discouraging results is not to fly from one remedy to another, but to take care that the remedies selected are thoroughly applied." The principle of managing the disease consists in producing in the hair-follicles an inflammation sufficiently acute to lead gradually to the destruction of the fungus without causing destruction of the hair-papillæ. The age and constitution of the patient should be considered and the remedies at first applied tentatively to ascertain the point of toleration. The author's own method of treatment is as follows: In a child, under three years of age, a sulphur ointment, one drachm to the ounce, is first used, gradually increased in strength, if well borne, which remedy (in such a case) if continuously applied will usually lead to a cure. For children of four or five years of age, in addition to sulphur ointment a solution of carbolic acid in glycerine (at first 1 in 8) is prescribed. In a child of seven and older, stronger remedies are usually demanded, of which citrine ointment, properly handled, is one of the most reliable.

The most potent remedy is probably corrosive sublimate, but it must not be forgotten that there is some danger attending its use, and that therefore it should be employed in a weak solution (one to three grains to the ounce), and only over a small area, and the patient carefully watched by the practitioner. The author justly concludes that the disease never warrants the use of remedies which involve the slightest danger to health and life. His own experience does not lead him to speak encouragingly of epilation.

The latter part of the book, the chapters treating of ringworm of the body, "inguinal ringworm" (eczema marginatum), tinea sycosis, and tinea kerion, are short, and, we think, hardly receive the attention due these diseases. In tinea sycosis and tinea kerion there is no mention made of sodium hyposulphite as a lotion (one drachm to the ounce), a mode of treatment (either with or without the use of an ointment, applied subsequently) which we have found to be of unquestionable worth, and a remedy in all ways desirable. There is much in the work that will prove of value to the practitioner, and a perusal of the pages cannot fail to give a clear idea of the disease.

THE DIAGNOSIS AND TREATMENT OF ECZEMA. By TOM ROBINSON, M.D.,
Physician to St. John's Hospital for Diseases of the Skin. 12mo. pp. 136.
London: J. & A. Churchill, 1887.

THE work is divided into chapters treating of the eczematous diathesis; symptoms of eczema; etiology of eczema; the differential diagnosis of

eczema; modifications of eczema; and the treatment of eczema; some of which are considered at length, while others are dismissed rather summarily. As a whole, the work is too brief to do full justice to the subject, more especially as the author inclines to be discursive, and to consider topics which must be regarded as collateral to the disease. The diagnosis and treatment, indeed, receive less consideration than we are led to expect from the title-page, and the book may be described as a running commentary on eczema rather than a systematic treatise.

Here and there we note some original observations, showing that the author is familiar with the subject, but in other places occur singular statements, which, considering their novelty, we think, should have been elaborated. Thus, after stating that "eczema does not leave a scar behind," we note that "the disease which is known as lupus erythematosus is an eczematous process;" and in another place, "there are many reasons for regarding this condition (lupus erythematosus) as an eczema;" and "when erythematosus lupus attacks the scalp it is always associated with a copious oozing of serum." These views, it need hardly be said, are entirely at variance with those of our text-books. Belonging to the same category (on page 46) we read, "the conditions which we know as pruritus ani and pruritus vulvæ are eczematous inflammations," etc. Again, "eczema marginatum is confined to the male sex" (page 47). It may further be mentioned that the author holds the view that pityriasis rubra is merely a form of eczema; and that "very few cases of sycosis run their course without becoming eczematous at some period of their career." Now, as has been intimated, all of those observations are so peculiar as to challenge criticism.

The treatment of the disease is unsatisfactory, because, among other reasons, no mention is made of the many exceedingly valuable remedies and formulæ that are now universally recognized as part of our armamentarium. The omissions are too numerous to cite. The methods, too, of using external remedies, a subject of the utmost importance, do not receive sufficient attention. As a whole, we would say that the book cannot take rank with the several more elaborate and well-known monographs on eczema already before the profession.

DISEASES OF WOMEN. A HANDBOOK FOR PHYSICIAN AND STUDENTS. By DR. F. WINCKEL, Professor of Gynecology and Director of the Royal University Clinic for Women in Munich. AUTHORIZED TRANSLATION by J. H. WILLIAMSON, M.D., Resident Physician Allegheny General Hospital. UNDER THE SUPERVISION AND WITH AN INTRODUCTION by THEOPHILUS PARVIN, M.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. 12mo. pp. xxix., 674. Philadelphia: P. Blakiston, Son & Co., 1887.

AFTER a careful study of this volume, we are prepared to endorse most heartily Professor Parvin's words of commendation. It appears in good season, for there was urgent need of a work for English readers in which the operative side of gynecology was not exalted to the chief place.

Dr. Parvin hits the mark when he says in the introduction that Winckel "gives great importance to gynecological medicine." The same graceful writer, who "has thrown the ægis of his great reputation" over the present translation, sums up in well-chosen language the essential features of the book and prepares us to give it a favorable reception.

Winckel's writings are sufficiently familiar to the German student. Such criticisms as we may offer are for those who for the first time enjoy the pleasure of perusing the present volume in English. It is divided into seven sections, each of which comprises, on an average, six chapters. The natural sequence is adopted. We study first diseases of the external genitals, next those of the vagina and uterus, then those of the tubes and ovaries, and lastly, affections of the periuterine tissues. There is a concluding section on diseases of the breasts.

Although the book at first sight appears to be less extended than many treatises of more imposing dimensions, a careful examination of the separate sections will show that each is in effect a monograph on the subject of which it treats, condensed, it is true, but with few important details omitted. Many of Winckel's short paragraphs contain in themselves an amount of information which may readily be expanded into pages. He needs to be studied, not simply read. The subject-matter is so compressed that it does not form light reading. The charm in his writings lies quite as much in the suggestion of reserve, as of expended, power. This applies particularly to the paragraphs on pathological anatomy, which, though often brief and dogmatic, are amply supported by statistics and by cases from the author's own experience.

The thorough manner in which each subject is treated will appear by reference to the introductory sections on diseases of the external genitals and vagina, which are usually dismissed briefly by writers on gynecology. Not so with Winckel. He devotes 130 pages to the vagina, a long chapter being allotted to malformations. The subject of vaginal cysts, which receives only a passing mention in most text-books, is fully treated (pages 146-153). The same remark applies to neoplasms of this canal.

Section III., on the uterus, is introduced by an exhaustive chapter on malformations. Chapter II., on displacements, comprises nearly a hundred pages, and well repays careful study, especially the subject of peri- and retro-uterine adhesions, on which the author is an acknowledged authority. His remarks on the forcible separation of such adhesions, according to Schultze's method (page 331), are characterized by the admirable conservatism that pervades all the pages devoted to gynecological manipulations.

The following hundred pages (Chapter III.) treat of neoplasms of the uterus, and, as might be supposed, the portion devoted to pathological anatomy is especially satisfactory. Extirpation of the uterus for cancer is discussed at length, and the reader may profitably refer to this chapter for a fair account of the present status of the operation. The paragraph on the treatment of fibromyomata (page 424) contains the gist of the author's creed with regard to surgical gynecology—"We should not show what we can do, but do that which is for the best."

In no other English work on diseases of women do we meet with such scholarly articles on diseases of the tubes and ovaries. In spite of the absorbing interest with which this subject has been invested of late years, the recent editions of our own text-books give but little space to the

pathology of these affections. The present translation supplies this want for English readers.

Section IV., on diseases of the tubes, is based on the author's own observations. Beginning with anomalies of shape and size, and displacements (Chapters I. and II.), he next discusses neoplasms, then inflammation and tuberculosis. Condensed as the matter is, by comparing these chapters with Hennig's monograph it will be evident that nothing has been overlooked. Diseases of the ovaries are similarly treated, the pathology receiving most attention. The paragraph on the treatment of oöphoritis is a most important one, pointing out, as it does, the vital objection to removal of the ovaries for the relief of pain. Winckel is practically ahead of the age; gynecologists will yet come to acknowledge the strength of his position. He speaks in no uncertain tone, in referring to Hegar's statement of the conditions under which oöphorectomy is justifiable. "I cannot," he says, "accept these indications. I consider every castration for the removal of ovaries which are not obviously diseased to be a mistake." Remember that it is a German who writes thus, one of a class whose members we sometimes criticise for their heroic, and, from our standpoint, unjustifiable, surgical procedures.

Want of space forbids our dilating upon the minor excellences of this scholarly work. If the reader attempts to go through it systematically, he will probably soon throw it aside as being dry and uninteresting. But, let him study each section by itself, and regard the whole as a book of reference, and he will find that its merits grow upon him. Only then will he appreciate the amount of practical experience and research, the results of which have been condensed within its pages.

While it cannot be denied that there is sometimes an unevenness as regards the relative amount of space allotted to pathology, symptomatology, and treatment, it must be remembered that the author's tastes are naturally in the direction of anatomy, and, therefore, the brevity of his remarks on treatment may be excused. The absence of detailed descriptions of operations, and of the usual diagrams illustrating them, will be noted as a serious defect; but it must not be forgotten that this is hardly a book for beginners. The translator has rendered the original into smooth, readable English, notably free from foreign idioms.

H. C. C.

PRACTITIONERS' HANDBOOK OF DISEASES OF THE EAR AND NASOPHARYNX.
(Third Edition of the "Aural Surgery.") By H. McNAUGHTON JONES,
M.D., M.Ch., M.A.O. (Hon.), Fellow of the Royal Colleges of Surgeons of
Ireland and Edinburgh. 8vo. pp. 176. London: J. & A. Churchill, 1887.

THIS very interesting handbook is divided into nineteen chapters, and mentions nearly all subjects of importance to a general practitioner, and also contains much to attract the attention of the special surgeon. The introduction deals chiefly with the inexcusable neglect of the study of otology among practitioners of medicine. As an inducement to the medical student to study otology, Dr. Jones advocates that the suggestion of the committee of the Otological Section of the British Medical Asso-

iation be adopted, viz.: "That the licensing bodies include otology among the subjects for examination."

Chapter II. is mostly statistical, while Chapter III. is of greater interest and value to those to whom the book is addressed. This treats of the etiology of ear diseases. Nasopharyngeal catarrh is tabulated as the chief factor in aural diseases. Sea-bathing, especially, may affect the ears, from the entrance of cold water into the auditory canal, and as a guard against this, the so-called protectors of Dr. Ward Cousins are recommended, and also those of the author. The latter kind are made of celluloid, of different sizes, and fit like stoppers into the meatus.

Struma and syphilis have their share in producing aural complications in children. The latter disease is often overlooked. However, the author has not had Hinton's experience (Guy's Hospital) that one-twentieth of all cases of ear disease are caused by hereditary syphilis. Uræmia, Bright's disease, menstrual disturbances, cardiac lesions, continued fevers, and gout, all have influence in producing or promoting aural disease.

The anatomical plates in Chapter V. are excellent in execution, and most instructive in their delineations. The physiological discussion in this same chapter is devoted chiefly to the Eustachian tube. The next chapter is quite a long one, and is devoted to symptomatology. The diagnosis and means of examination in aural maladies are alluded to very thoroughly in the seventh chapter. The figures of instruments are numerous, and for the most part portray valuable implements. Some, however, are antiquated, and have been superseded by much better ones—at least in Germany and this country. No aural instrument in the same axis as the handle—*i. e.*, no straight instrument—is as good as one set at an angle of forty-five degrees to the handle. In this respect the instruments figured in our author's book are open to criticism. That modern improvements are fully appreciated by the author, is shown by the figure of an electric head lamp for examining the ear. It is called in this work the photophore for the forehead.

Chapter X. contains many valuable hints upon hygiene of the nasopharynx, especially as to the importance of dressing warmly at night in winter time, and also of sleeping in comfortable rooms.

In Chapter XI. the affections of the external ear are considered. Eczema of the auricle and erysipelas of the meatus of the ear, otitis externa, both acute and chronic, furuncle and abscess, recurrent abscess of the meatus and abnormal conditions of the cerumen, are fully explained and their treatment laid out. The diseases of the external ear are further considered in the next chapter (XII.) under the heads of polypi, hyperostosis, exostosis, atresia, foreign bodies, aspergillus, and othematoma. A rather tautological nomenclature for polypi, is given in the statement that "they are either mucous, fibrous, or myxomatous." Great caution, with much other good advice, is given for the removal of foreign bodies from the ear. Othematoma is considered a disease peculiar to the insane. In the thirteenth chapter the "nasopharynx in relation to deafness," is very fully considered. The principal causes of *acute* nasal catarrh may be given as "exposure to cold, sudden vicissitudes of temperature, season of the year, the nervous and rheumatic temperaments, cold extremities, change of clothing, and bodily fatigue." *Chronic* nasal catarrh is due to recurrent attacks of the acute or subacute forms, to nasal and post-nasal growths, to temperament, syphilis, and polypus. The author has used cocaine spray (four to ten per cent.) "with marked benefit in con-

gested and catarrhal states of the mucous membrane, and in chronic hypertrophic conditions of the pituitary bones."

Hypertrophy of the tonsils, spoken of in the fourteenth chapter, is, in the author's opinion, best treated by excision or amputation, rather than by the modern method of cleaning out the plugged crypts, and excising only the hypertrophied fibrous stroma. In our opinion, the *glandular* structure should be spared as far as possible from the guillotine. Adenoid growths in the nasopharynx, their symptoms and treatment, receive due attention. Various instruments and affections of the nasopharynx are figured, but we fail to find either due prominence given to chronic hypertrophies of the turbinated bodies, or any mention of the very efficient instrument for their removal, viz., Jarvis's snare.

Simple acute catarrh, simple chronic catarrh, and acute suppurative catarrh, are next considered. Under the latter head, the author speaks of the possible necessity of opening the mastoid. But how this could arise in an acute case we are at a loss to see. Such a contingency could only arise in an acute process in an ear previously chronically diseased by purulent processes. But the rarity of the occasion when this operation of opening the mastoid cavity could be considered by a fair judgment to be a vital indication, is so very great that it hardly deserves a place in a book for the use of general practitioners. Many specialists see only very seldom a demand for this operation.

Chapter XVI. is, nevertheless, given up to the consideration of mastoid inflammation, and opening or trephining this part of the temporal bone. The author, however, is not over-swift to perform this operation, and lays down good rules to be followed in such cases.

In the next chapter, the seventeenth, tinnitus aurium and aural vertigo are carefully considered. The author is to be congratulated in the choice of the term "aural vertigo"—rather than the restricted and misleading term, "Ménière's disease." The latter receives just notice as subordinate to the more general term, aural vertigo. The treatment laid down for this malady is most rational. The location of the lesion in the ear, productive of vertigo, is first to be sought, then the treatment follows most rationally. The mistake heretofore has been to refer all such cases to nerve lesions.

The book ends with an interesting consideration of the deaf-mute. No general practitioner can fail to receive much instruction by reading this well-printed and well-written book, offered to him by a thoughtful author.

C. H. B.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE SKIN, FOR STUDENTS AND PRACTITIONERS. By CONDUCT W. CUTLER, M.S., M.D., Assistant Attending Physician for Skin and Venereal Diseases at the New York Hospital Out-door Department. 12mo. pp. vi., 139. New York and London: G. P. Putnam's Sons, 1887.

IN the little book before us the author has arranged in tabular form the characteristic features of such skin diseases as are liable to be confounded one with another, so that their diagnosis may be simplified. The

task is by no means an easy one, for in dealing with the subject in this form, and within the compass of a small book, everything must give way to condensation, often at the expense of accuracy and facts. When statements are presented dogmatically and in strong antithesis, and where they are, as it were, made to adapt themselves to circumstances, one naturally finds much to question and criticise, and such is the case in the volume before us. Some of the definitions of the lesions, for example, are too curt to give a correct idea of the subject; thus, a papule is described as "a circumscribed solid elevation of the skin," nothing being said as to other characteristics, as, for example, size. Dubious statements, or at least such as tend to give a wrong impression, often because of their brevity, are not infrequent. The very character of the book, that of extreme condensation and dogmatic dicta without qualification, entails such faults. The work, however, will prove an aid to the busy practitioner who desires points in diagnosis without being obliged to study the subject; it will prove more useful to the graduate than to the student.

MANUAL OF CLINICAL DIAGNOSIS. By DR. OTTO SEIFERT, Privat-docent in Würzburg, and FRIEDRICH MÜLLER, Assistant der II. Med. Klinik in Berlin. Third Edition, Revised and Corrected by DR. FRIEDRICH MÜLLER. Translated, with the permission of the Author, by WILLIAM BUCKINGHAM CANFIELD, A.M., M.D. (Berlin); Fellow of the American Academy of Medicine, etc. With sixty illustrations. New York and London: G. P. Putnam's Sons, 1887.

THE first chapter of this excellent little book is on a subject which is beginning to receive the importance it deserves—the examination of the blood. Nothing could be more appropriate, or, to use a much-abused term, more practical. While the directions for such examination are not full enough to supply every want, they are very suggestive, and will lead the student to consult more elaborate works on the blood.

The fourteen chapters of the work are very concise, as is evidenced by the fact, that, excluding an elaborate dose-table and index, it contains only 143 pages. Each chapter is well up with the times. Those on the digestive and nervous systems are of particular interest. Under the former head, directions are given for examining the contents of the stomach. Late researches have shown that valuable diagnostic information may be gained by such examination. Under the head of the various so-called tendon reflexes, that of the lower jaw, discovered by Dr. Morris Lewis, is not mentioned. Unlike most translators, Dr. Canfield, who has done his work well, has withheld his hand from any attempt at emendation.

The manual is one of a kind that should be thoroughly mastered by the under-graduate, and often consulted by the practitioner.

F. P. H.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE TREATMENT OF CHOREA BY ANTIPYRIN.

In a communication that recently appeared (*Revue de Thérapeutique*, Jan. 15, 1888) M. LEGROUX gives the results obtained from the use of antipyrin in chorea. By the treatment hitherto pursued, the average duration of the cases of chorea has been sixty days according to MM. Sée and Rogers, and ninety days according to Cadet de Gassicourt, but in the treatment by antipyrin Legroux finds that the average duration is about sixteen days, the minimum being six, and the maximum twenty-seven days.

The mode of administering antipyrin is simple. In twenty grammes (about six drachms) of syrup of bitter orange (French codex) he dissolves one gramme (fifteen and a half grains) of purified antipyrin. Three doses of this size are given in the course of twenty-four hours.

ANTIPYRIN AS A HÆMOSTATIC.

OLIKHOW (*Bull. Gén. de Thérap.*, Jan. 15, 1888) reports the successful employment of antipyrin by inhalation in hæmoptysis. The solution used by him is in the proportion of four to fourteen, this having proved to be the most effective. These figures are the more satisfactory in that the cases thus treated had been under the ordinary management without success.

THE ANTIPYRETIC EFFECTS OF ICE APPLIED TO THE CARDIAC REGION.

WALTER, at the clinic, and under the supervision of Menassein (*Bull. Gén. de Thérap.*, Jan. 15, 1888), has tried the application of ice to the cardiac region as a therapeutical expedient, with results in many respects interesting and important. This application of ice does not much affect the heat of the body in general, but at the point of application the temperature is much lowered. The character of the febrile pulse is changed. The systolic impulse is at first

lessened, but the dirotism is not much affected. After a time, however, the systolic impulse increases greatly in force. The ascension line of the pulse trace becomes more oblique, and rises higher, and the declension line is lengthened, the dirotism disappearing. When the ice is removed, the previous character and quality of the pulse return.

It is to be remarked, says our author, that the same effects are produced in pneumouia by the application of ice. In an epidemic of pneumonia occurring amongst the soldiers of a garrison town, he abstained from the use of ice in cases characterized by active reaction. When, however, hyperpyrexia came on with feeble pulse, application of ice to the cardiac region had good effects in the way of lessened fever heat, slowing of pulse and respiration, and, consequently, improvement in the patient's condition.

The conclusion arrived at after sufficient clinical experience, is that the application of ice to the cardiac region is a powerful expedient, adapted to the treatment of the more serious cases of fever, to increase the power of the heart and restore its regularity of action.

The mode of applying ice is not described with particularity, but we gather from the article that it is contained in glass vessels. "I leave the vessel of ice," says the author, "in position for twenty-four to forty-eight hours, according to the case, and up to the crisis" (of pneumonia).

A SUCCESSFUL TREATMENT OF HYDROPHOBIA.

DR. KICHENSKY, in an elaborate study, from the clinical side, of 693 cases occurring in the hospital at Moscow, reports a case in which success followed a peculiar treatment (quoted in the *Bull. Gén. de Thérapeutique*, January 15, 1888).

A woman, aged thirty-five, was bitten by a mad dog five weeks before her admission to the hospital. She presented all of the usual symptoms of the disease in their most typical form. She was placed in a warm bath, where she was bled to syncope, losing fourteen ounces. During the two following days she was given ten grammes (160 grains) of powdered belladonna leaves. On the third day the hydrophobia disappeared.

THE EFFECTS OF ACETANILIDE (ANTIFEBRIN) IN FEBRILE DISEASES.

DR. ADEMSKI (*Wratsch*, 1887, No. 25; quoted by *Bull. Gén. de Thérap.*, January 15, 1888) narrates his experiences with acetanilide in various febrile diseases. Amongst them there were 4 of typhoid, 3 of acute rheumatism, 2 of pleuro-pneumonia, and 1 each of intermittent pleurisy, phthisis, and erysipelas. Not all patients bore the remedy well, and in one case of acute rheumatism a dose of sixty centigrammes (ten grains) brought on symptoms of collapse. The temperature was invariably lowered. A dose of two grains every hour rapidly lowered the fever heat. The pulse is lowered from ten to thirty beats per minute, and the respirations may be brought down from 26 to 14. Sweating was a constant result. In large doses acetanilide induces hypnotic effects, and in such cases as acute rheumatism and erysipelas, manifests an anodyne action. Diuresis was a symptom in the majority of cases. The urea was lessened, but the total output of nitrates was increased; the

phosphates, the chlorides, and the sulphates were diminished in quantity. The diuresis for the most part consisted, therefore, in a mere increase of the urinary water.

SUBCUTANEOUS INJECTION OF MERCURY IN THE TREATMENT OF SYPHILIS.

Increasing experience confirms the late estimates of the value of the insoluble mercurials in the treatment of syphilis. Now comes PROCHOROW (*Ibid.*) with cases showing the curative power of metallic mercury when injected subcutaneously. He injects three to four times a week, eight to ten grains of metallic mercury in those who have had no other treatment. In most of the cases water baths were also used.

Prochorow suggests in explanation of the utility of the practice, that the mercury in minute globules remains for some time without chemical change. The baths, by dilating the vessels, promote the distribution of the mercury through the tissues. He finds that under this treatment syphilis of recent origin disappears in from three to six weeks. In old cases, he has found that the injection of thirty grains gives very good results.

The operative procedure is as follows: In a syringe (which must not be of metal) he takes up fifteen grains of mercury, and then fills the instrument with distilled water. Reversing the syringe that the water may go first, the injection is made in the ordinary way.

THE TREATMENT OF ANEURISM.

The January issue of the *Therapeutische Monatshefte*, of Liebreich, contains a paper by DR. SCHEELE on the various modes of treating aneurism. The object of the paper appears to be didactic and critical rather than experimental and clinical—to inform the readers of the journal about the present state of knowledge of the subject. Our readers, we believe, will be no less pleased to have placed before them a comprehensive view of the therapeutics of aneurism.

Dr. Scheele classes the remedies in three groups: dietetic; medicinal; mechanical or surgical.

As regards the dietetic, Tufnell's method is the chief. The low diet and the rest increase the blood pressure of peripheral source, lessen the number and the force of the cardiac contractions, and greatly increase the relative proportion of the fibrin of the blood—the effect of these agencies being to favor coagulation in the aneurismal sac, and organization of the fibrin. Successful cases have been reported by Tufnell, Bellingham, Findlay and others. Von Harris has collected 13 cases up to 1882, and of these 6 were reported as much improved. MacKellar (*Lancet*, 1882) has published an account of a case spontaneously cured under conditions that, in practical action, correspond to Tufnell's method. It was a sacciform aneurism of the celiac axis, which became consolidated during an attack of chronic dysentery that ultimately proved fatal.

Of the purely medicinal agents used, Dr. Scheele considers the various medicaments that act on the vessels and favor coagulation of the blood in the aneurismal sac by raising the peripheral tension. The most striking instance of cure is the case narrated by Flint, of England, in which this result was

achieved by chloride of barium, one-fifth to one-third grain in pill three times a day. It is remarkable that a remedy possessed of the powers of barium should be dropped from the official list. Such is the fact. In vain may the Pharmacopœia of 1880 be inspected.

Digitalis is spoken of with favor in the cases of aneurism accompanied by mitral incompetency and dilated right cavities. The most useful of these dynamical remedies is ergot, especially as employed by subcutaneous injection according to the method of Langenbeck.

Dr. Schcele commends especially the utility of iodide of potassium in massive doses, according to the plan of Bouillaud and Balfour. At first, merely empirically used, its mode of action is now being established on a physiological basis by the researches of Nothnagel, Rossbach, and Kobert. It seems to be clear that the iodides have an action on the blood, increasing its coagulability, and on the vessels, lessening the calibre of the arterioles, which has the effect to raise the tension and slow the beats.

We will not follow our author in his account of the surgical or mechanical treatment; but *apropos* of an abstract given above, we call attention to the use of ice in the treatment of aneurism. Dr. Schcele finds the secret of its utility in the effects of ice on the vessels, and in slowing the heart. Our readers can compare the observations made independently, and ascertain the manner in which the physiological actions procure therapeutical effects.

NAPHTHOL.

The following is recommended by Kaposi in the treatment of scabies:

Adipis	100 parts.
Sapo viridis	50 "
Naphthalin.	15 "
Cret. alb. pulv.	10 " M.

The same has been used in acne with success.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,

PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-
DOOR DEPARTMENT, NEW YORK.

THE TREATMENT OF ARTICULAR RHEUMATISM.

AUFRECHT (*Deutsche med. Wochenschrift*, Jan. 12, 1888, p. 23) has had an interesting experience in the treatment of rheumatism. As the result of extensive trials he came to use salicylic acid in acute cases to the exclusion of

all other remedies, and with complete success so far as the disease was concerned. He used the acid in full doses, 90 grains pro die for the first two or three days, and 60-45 gr. pro die during the following eight or ten days.

Unfortunately this treatment could not be fully carried out in every case. Burning pain in the stomach, vomiting, tinnitus aurium, or dyspnœa sometimes made the drug unbearable. The use of salicylate of soda in corresponding doses was no improvement. Not only did it cause the same disagreeable symptoms as the acid, but in Aufrecht's hands was not as effective in subduing pain and fever.

On the introduction of salol, a trial of it showed a marked improvement in many respects. Causing but little local or general disturbance, its use could be continued almost indefinitely. Thus, one patient of Aufrecht's took altogether more than 3500 grains in doses of 90 grains daily. On the other hand, in acute polyarthritic cases it was not so effective as salicylic acid. Whereas the latter usually subdues pain and fever in the first twenty-four hours, salol requires three or four days, though pain was greatly ameliorated within the shorter period.

In consequence of its many advantages salol was adopted as the routine treatment by Aufrecht, but on the occurrence of a fatal case of acute endocarditis under its use—a thing not met with among 600 cases treated by salicylic acid—it was discontinued. Since then what might be called the mixed treatment has been followed. In this, acute cases receive during each of the first two days 90 grains of the acid, after that the same amount of salol. Later, the patient still remaining in bed, the salol is reduced to 60 grains daily. As salicylic acid is usually well borne for two days, but frequently no longer, this recommends itself as the best routine treatment. If possible, the acid can be continued; if, on the other hand, it can not be taken, salol alone may be used.

In chronic articular rheumatism salol is preferable in every respect, not only avoiding the dangers attending prolonged use of salicylic acid, but offering more positive assurance of cure.

PLEURAL EXUDATE CONTAINING AN INDIGO-FORMING SUBSTANCE.

The following unique observation is recorded by PAUL GUTTMANN (*Deutsche med. Wochenschrift*, Dec. 22, 1887): On tapping a case of chronic pleurisy with sero-fibrinous exudate, the fluid presented, shortly after removal, a peculiar greenish-blue shimmer. This led to its careful filtration and further preservation. The color gradually became more intense, and after a few days was dark blue—so intense, that when diluted in the proportion of one to ten it was still quite blue. This color, as was proven by exhaustive tests, resulted from the presence of indigo-blue. Culture experiments proved the absence of microorganisms in the fluid.

Guttmann remarks that this is the first time an indigo-making substance has been found in a pleural exudate.

Beside its occurrence in the urine, one case has been recorded (Bizio, *Sopra la presenza dell'indaco nel sudore. Sitzungsbericht der Wiener Akad. der Wissensch.*, 39 Bd., Jahrg. 1860, S. 33-40) in which it was deposited as a blue precipitate on the serotum from the perspiration. It is quite possible that its occurrence would be noted oftener if exudates were preserved longer, as the color de-

velops slowly, and it is hoped this communication will lead physicians to look for it.

In commenting on the above case in the Berlin *Verein für innere Medicin* (loc. cit.), EHRLICH called attention to the great theoretical importance of the observation. Since bacteria are absent, he said, it must be supposed that the pleura itself produced the indigo-white.

This latter substance is remarkable for its strong affinity for oxygen. Where it is formed, no free oxygen can be present, and, moreover, the parts producing this substance must be in the highest degree reducing agents. This confirms some assertions made long ago by the reporter, claiming for the lung tissue decided reducing properties. As this did not agree with prevailing theories of the pulmonary function, his assertions were doubted. Recently, Boehm has made some experiments which go to prove that the lungs act not only mechanically, as in the gaseous interchange, but also like secreting organs, and from this latter fact the reducing power of the pulmonary tissue is easily explained.

CREASOTE IN THE TREATMENT OF LARYNGEAL AND PULMONARY PHTHISIS.

From the present great interest in the treatment of phthisis and the restless search for new remedies or modes of cure, some remarks by HOFMANN (*Berliner klin. Wochenschrift*, Dec. 26, 1887, p. 985) may be cited with profit. This author cordially agrees with the statement of Sommerbrodt (*ib.*, 1887, Nos. 15 and 48) that the beneficial action of creasote in phthisis is in direct proportion to the amount used. In place of the usual wine and creasote, and the unpleasant combination with cod-liver oil, Hofmann has used during eight years a mixture of the drug with tincture of gentian in the proportion of one to two. Beginning with ten drops three times daily, the dose is run up rapidly to twenty, twenty-five, or even thirty drops. Short interruptions were allowed, and this remedy was universally well borne and exhibited no toxic effects.

In cases of laryngeal phthisis in addition to the creasote internally, nitrate of silver was used locally in substance with the best results.

Even in advanced cases the treatment was carried out, not so much in the hope of curing as for the reason that it seemed equal to any other in alleviating the symptoms of the later stages. Even in such cases real benefit often followed.

Contrary to expectation, in intestinal tuberculosis and the diarrhœas referred to it, creasote was of no benefit. In general miliary tuberculosis it is useless, and the forms of disease most benefited have been those with hemorrhages, or with caseous or fibroid degeneration. During actual hæmoptysis the use of the remedy is suspended. The author thinks the most decided value of the treatment results from improvement of the gastric and intestinal digestion, the immediate cause of which he leaves undecided.

The rapid improvement of appetite and assimilation soon appears manifest in increased weight and renewed vigor, and through the latter the patient is rendered more capable of withstanding fresh inroads of disease.

So evident was the effect on the alimentary tract that the author was led to

use creasote with benefit in ordinary cases of dyspepsia and gastric catarrh. In bronchitis of children it was used with satisfaction, and the recommendation of Sommerbrodt to apply it in cases of enlarged glands and eczema was followed with advantage.

Though the use of the mixture, as given above, often causes coughing and hawking, it seems, on the whole, preferable to capsules, evidently for the reason that the latter cause a greater local irritation where they are dissolved, and the local action in the mouth, throat, and œsophagus is highly desirable.

In view of the very favorable results of Hofmann, it is to be hoped the hesitation to use creasote in full doses will be overcome, and that it may receive what its advocates claim it deserves, a thorough, long-continued trial.

CARDIOCENTESIS.

Puncture of one of the cardiac cavities in states of extreme dilatation was advocated and practised by Westbrook, of Brooklyn, in 1882. J. B. Roberts and Leuf have urged the adoption of the method in suitable cases, and it has now been performed, accidentally or by design, in a number of cases by Dana; Corwin, Moorman, Checseman, and others.

In *Le Progrès Médical*, 1887, Nos. 4, 9, 50, 51, and 53, DR. BRUHL discusses the subject at great length and analyzes carefully the American observations. The tone of the review is favorable to the operation, and the following conclusions are drawn :

Cardiocentesis is a practicable operation, in the majority of cases not dangerous, and may be performed for the relief of dilatation of the right heart not dependent upon organic disease.

Aspiration facilitates the operation.

The auricle or the ventricle may be punctured.

To puncture the right auricle the needle is inserted in the third right interspace at the sternal margin, and thrust directly backward.

To puncture the right ventricle the needle is inserted in the fourth left interspace at the sternal margin.

Aspiration of the ventricle is preferable, as there is less likelihood of the production of hæmopericardium.

Cardiocentesis is practically venesection of the lesser circulation, and also acts as a mechanical excitant of the heart.

The observations are not yet numerous enough to formulate a definite judgment on the operation, which is, however, *a possible one, not to be rejected on à priori grounds.*

The operation is of doubtful utility and not without its dangers, as in a case of Dacre's the aorta was punctured, and in at least one case fatal hæmopericardium followed. In a case of non-valvular hypertrophy and dilatation of the heart which was discharged from my wards at the Philadelphia Hospital, the patient was readmitted by accident to the surgical ward in a state of extreme cyanosis. The resident surgeon punctured the heart with a hypodermatic needle. At the autopsy the pericardium contained a couple of ounces of blood, which had come from a puncture in the anterior coronary vein. Watson, of Jersey City, has advocated puncture of the heart in chloroform narcosis, to stimulate the fibres mechanically, but in this procedure there

is not only the danger of hemorrhage, but it is quite possible that Kronecker's coördination centre—which in the dog occupies the lower part of the upper third of the ventricular septum—might be touched, in which case immediate death would follow.

In puncturing the right auricle it is well to bear in mind that this cavity is not always reached by a needle thrust in close to the sternal margin at the third right interspace. In five bodies, recently, a needle so inserted entered the appendix in two cases, in one close to the fringed edge; in one case the auriculo-ventricular groove was punctured, and in two the needle entered the base of the right ventricle. With a greatly distended right auricle it might be safer to puncture outside the line of the internal mammary artery—say an inch and a quarter from the sternal margin—and carry the needle downward and toward the left.

ENDARTERITIS DEFORMANS AS A CAUSE OF SUDDEN DEATH.

KEY-ABERG has made an analytical study of sudden death from the point of view of medical jurisprudence (*Nordiskt med. Archiv*, Bd. xix., Nos. 11 and 15). The work is divided into three parts. The first, forming as it were an introduction, treats of the various conceptions of sudden death entertained respectively by the physiologist, pathologist, and medical jurist. It emphasizes the necessity for the latter to comprehend, to the greatest extent, all the anatomical alterations which experience shows are capable of suddenly terminating life. The section ends with an historical review of the statistics up to the time of Ferrario (1834).

In the following section the author examines statistically the importance of chronic endarteritis (endarteriitis chronica deformans, Virchow) as a cause of sudden death. The basis of the material for this part of the work was derived from the medico-legal laboratory in Vienna, 852 of the cases analyzed being those of sudden death in persons over the age of fourteen years, examined in that city between June 1, 1881, and June 1, 1886. Though it might be urged that local conditions play too large a part in such statistics, it is probable they do not materially alter the results attained.

The following represent the more important conclusions of the section under consideration:

1. In 74.5 per cent. of all cases of sudden death from natural causes, the fatal result is due to chronic endarteritis, or one of its sequences.

2. In the deaths named, these sequences are, with rare exceptions, one or other of the following: Paralysis of the heart, rupture of the heart, rupture of aneurism of aorta or one of its extracranial branches, rupture of the aorta (including dissecting aneurism), or intracranial hemorrhage. (Out of 635 cases, only one was caused by embolism of the cerebral arteries, all the others were due to the causes enumerated.)

3. Of the lethal causes named, cardiac paralysis formed 71.1 per cent.; rupture of the heart, 2.4 per cent.; rupture of aneurism of aorta, etc., 8.7 per cent.; rupture of aorta, 2.5 per cent.; intracranial hemorrhage, 13.3 per cent.

4. Of all cases of sudden death from natural causes in persons above the age of fourteen years, the cause was paralysis of the heart in 52.9 per cent.;

rupture of heart, 1.7 per cent.; rupture of aneurism of aorta, etc., 6.4 per cent.; rupture of aorta, 1.9 per cent.; intracranial hemorrhage, 11.3 per cent.

5. Among the cases of chronic endarteritis, males formed a decided majority. This was especially marked in paralysis of the heart (64.5 per cent. males) and rupture of aortic aneurism (males about 79 per cent.).

6. In the cases just mentioned, senility does not seem to be an important factor, since a majority occurred between the ages of forty and forty-four.

7. In general, men dying of paralysis of the heart are younger than women dying from the same cause, the same probably holds good for aneurism of the aorta. It would seem, therefore, as if chronic endarteritis develops more rapidly, and progresses with greater energy in men than in women.

8. Social position and profession appear to be without influence on the question of etiology.

9. More cases of paralysis of the heart occur during the first three and last three months of the year, than during the other six months. Most of the cases of death from this cause occur in winter.

10. In general, deaths from chronic endarteritis are most frequent in winter; then follow autumn, and with about equal frequency, spring and summer.

The last section is devoted to a study of endarteritis deformans in the coronary arteries and their orifices in the aorta, as a cause of cardiac paralysis. In calling attention to the importance of such an investigation, the author shows that out of thirty-three cases of cardiac paralysis due to endarteritis, he found in twenty-two arterio-sclerotic changes in the vessels named quite sufficient to prove a causal relation.

The author describes in detail the results of thirteen autopsies, in which death was considered due to cardiac paralysis brought about by sclerosis of the coronary arteries. What is of special importance, according to the author, is that he arrived at results directly opposed to the opinions generally adopted, so far as fatty degeneration of the heart was concerned. In only two out of the thirteen was there fatty degeneration involving a large area. Necrotic softening was, apparently, the principal change observed.

THE MUTUAL RELATION BETWEEN THE SALIVA AND THE GASTRIC JUICE.

GEORGE STICKER (Volkman's *Sammlung kl. Vorträge*, No. 297) has made some investigations on the action of saliva which tend to alter materially our ideas of stomach digestion.

The view thus far held has been that the saliva exerts its amylolytic action until the increasing secretion of acid gastric juice checks it, and that then the peptonizing of albuminoids begins. Sticker has come to opposite conclusions.

According to him, the importance of saliva lies in the fact that absence of it causes a decrease or total failure of secretion of gastric juice, and that want of saliva causes not only abolition of amylolytic action, but also influences essentially the gastric proteolysis.

The basis of this investigation was furnished by a patient who had no salivary secretion. Examination of the gastric contents showed not only diminution of amyloid, but also of proteid, digestion, consequently diminished secretion of gastric juice. Administration of jaborandi not only reëstablished

the saliva, but caused a return of the normal gastric secretion, so that in two weeks the patient had entirely recovered.

Since the jaborandi could not have affected the stomach directly, it may be assumed that the secretion of saliva, and its introduction into the stomach, excited the latter to activity.

This view is confirmed by an experiment made by Sticker to that end. Egg-albumin and starch were introduced into the stomach and allowed to remain two hours, in one case avoiding swallowing saliva, in another allowing it to mix in the normal manner with the contents of the stomach.

In the latter case the stomach was found empty, in the former undigested starch and albumen were found and the gastric juice possessed but slight peptonizing power.—*Fortschritte der Medicin*, No. 2, 1888.

THE CHLORIDES IN URINE IN GASTRIC DISEASE.

As bearing on the much discussed question of hydrochloric acid in gastric diseases, and the relation of the urine chlorides to hyperacid vomiting (see *AMERICAN JOURNAL OF THE MEDICAL SCIENCES* for December, 1887, and January and February, 1888), the following conclusions of GLUZINSKI may be read with advantage (*Berliner kl. Wochenschrift*, No. 52, December 26, 1887, p. 983):

From the examination of the urine in a great number of cases of gastric disease, it may be affirmed that a decrease in the amount of chlorides occurs under the following conditions:

1. When the amount of chlorides received into the system is too small, as in inanition, or continued vomiting after eating.

2. When, notwithstanding sufficient ingestion, the absorption of chlorides is affected. This occurs in the severe dilatation following carcinomatous stenosis of the pylorus.

3. In cases where there is an excessive secretion of gastric juice, but only then, when the excess is removed by vomiting or repeated artificial aspiration, or when the mucous membrane is unable to absorb it, as happens in marked genuine dilatation or that caused by cicatrices.

Finally, other things being equal, marked decrease or disappearance of chlorides in urine speaks rather for a benign process, with excessive secretion of hydrochloric acid, than for a malignant new-growth.

ALBUMINURIA OF THE HEALTHY.

In view of all that has been published in late years on the significance of traces of albumin in the urine of persons to all appearance healthy—so-called physiological albuminuria—the investigations of GRAINGER STEWART on this subject, communicated by him to the Edinburgh Royal Society, are instructive. He found albumin present in 31 per cent. of the urines from 407 healthy persons. The individuals under observation were engaged in a variety of pursuits, but it is to be observed that nearly all were of the poor class, living in unhygienic circumstances. Thus, in 40 children, of one of the city poor-houses, 17.5 per cent. had albumin, and of 40 male inmates, 67.5 per cent. Observations regarding the influence of food or exercise show that after breakfast the percentage of those in which albumin occurred was greater

than in the same number before the meal, it being in most instances, indeed, nearly doubled. Moderate exercise, on the other hand, diminished the percentage: soldiers after a march, for instance, showing a decrease in the number having albumin. Fatiguing exercise increased the percentage, likewise cold bathing.

From his observations Professor Stewart concludes that albumin may be eliminated from the healthy kidney, and is not in itself a sign of disease; and that, therefore, the presence of albumin in the urine is in itself not a sufficient cause for rejecting an applicant for life insurance.

Before accepting these deductions further observations are necessary, and especially observations upon a large number of individuals living amid favorable surroundings.

PULSATING SPLEEN.

Prior reports (*Munch. med. Woch.*, 1887, No. 45) two new cases of pulsating spleen. One was in the case of a typhoid fever patient with aortic insufficiency, the other a man of thirty-seven years, with functional (strain) hypertrophy of left ventricle, in hospital for pneumonia.

Prior accepts Gerhardt's explanation of the genesis of such cases, which is, in short, as follows: In addition to the hyperæmia of the organ and the relaxation of the vessel walls from fever, there is a hypertrophic, energetically acting left ventricle.

THE CONNECTION BETWEEN OBESITY AND DIABETES.

In the *Berliner klin. Wochenschrift*, 1887, No. 46, PROF. KISCH, of Prag-Marienbad, has an interesting article in which he endeavors to show the close relation between obesity and diabetes mellitus.

Seegen (*Beiträge, Virchow's Arch.*, Bd. 30) showed the frequent development of diabetes in obese persons, 30 out of 100, according to his analysis, having been excessively fat in the beginning of, or prior to, the glycosuria. Nevertheless, the fatty habit has always been looked on as an uncertain etiological factor.

Kisch affirms that in general obesity there is frequently temporary glycosuria, in some cases of which sugar is present in the urine in large amounts. The duration may be long or short, and the patient not sensibly affected. Still, such a condition must be looked on as unfavorable. The glycosuria sometimes becomes permanent, so that the temporary attacks must be considered as forerunners of the diabetes.

In all cases where hereditary obesity comes on in youth and progresses rapidly, and in non-hereditary cases where treatment is not beneficial, diabetes must be looked out for. Of the former one-half, of the latter fifteen per cent. become diabetic.

In many families it can be shown that some members are fat from childhood and others are diabetic, or the fat individuals become diabetic about the fourth decade. This is shown very well by three tables, giving the number of obese and diabetic members of three generations in each of three families.

In the transitional cases the change is gradual. The individual loses his fat, though the appetite and digestion remain good and there may be no

thirst or increased urination. At last, thirst or an attack of boils causes a urine examination, and sugar is found, usually in small amounts. Frequently calcium oxalate is present in large quantity. In such cases the course of the disease is slow and mild. Diet and proper remedies suffice to keep the patients alive many years.

The causes of the condition are not altogether clear. It is evident that errors in diet do not enter largely into the causation of hereditary cases. Kisch inclines to the belief that the muscles, becoming infiltrated with fat, are unable to convert sugar into glycogen. The chief thing is a congenital abnormality of tissue, by reason of which fat is not used up and sugar not fermented or oxidized.

DIASTASIC FERMENT IN THE URINE.

BREUSING (*Virchow's Archiv*, vol. cvii. p. 186) has found that when a starch solution is added to urine, both normal and pathological, and the mixture kept for some time at blood heat, the starch disappears. It is evidently not converted into glucose, however, but probably into some intermediate product, for while the mixture turns brown when boiled with caustic alkali (Moore's test), it is only after a twenty-four hours' digestion in the hot air chamber that it is capable of reducing Trommer's test, and this only upon prolonged boiling, while the fermentation test gives negative results. In urines boiled previous to adding the starch solution this conversion does not take place, pointing to the destruction of the ferment by the boiling temperature. The ferment can be precipitated by alcohol, and then re-dissolved in water, when it shows its original powers. Diabetic urines have this power as well as the urines of other pathological conditions.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.

SURGEON TO THE PHILADELPHIA AND GERMAN HOSPITALS; CLINICAL PROFESSOR OF GENITO-URINARY SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

GUNSHOT WOUND OF CHEST.

DR. J. VAN DYKE reports (*Buffalo Med. and Surg. Journal*, January, 1888) a case in which a boy was shot in the back one inch and a half to the right of the eighth dorsal spine, the ball, which was round and three-eighths of an inch in diameter, taking a direction upward, forward, and a little outward, and lodging under the middle of the right clavicle. The case may be summarized as follows: Great shock, emphysema of subcutaneous tissue, pain in the chest on deep respiration, also in right shoulder and elbow; numbness of first and second fingers; hæmoptysis, great dyspnoea and dulness, and absence of respiratory murmur over upper lobe of right lung. In three days

the pulmonary symptoms lessened and a rough bruit was heard under the middle of the right clavicle. Twenty-three days afterward the ball was removed from beneath the clavicle. All the symptoms of neuritis of the branches of the outer cord of the brachial plexus were present and continued, together with symptoms of aneurism of the first portion of the axillary.

An interesting point in the clinical history of the case was the occurrence of momentary attacks of sudden blindness, beginning a few minutes after the injury and occurring twice a week or oftener for eight months, at which time the third portion of the subclavian was successfully tied for the axillary aneurism, and that, together with all other marked symptoms, disappeared. Dr. Van Duyn very justly calls attention to the difference between such an operation to-day and one that he witnessed twenty-five years ago, when, in a similar case without antiseptic precaution, death resulted from pleurisy and the exhaustion of suppuration.

ADVANCES IN THE SURGERY OF THE GALL-BLADDER.

DR. M. HIRSCHBERG, after detailing (*Deutsche medicinische Zeitschrift*, Nov. 30, 1887) a case in which a large stone was removed from the gall-bladder, leaving a fistula which subsequently healed, considers the indications for the various operations upon the organ in question, and comes to the following conclusions: Operative interference with the gall-bladder may be indicated in severe cholelithiasis which has resisted medicinal treatment; in retention swellings of the gall-bladder arising from closure of the cystic duct by a stone; and especially in empyema of the gall-bladder. Operative interference is not allowable while a stone is either demonstrably or probably passing through the duct. Its passage into the intestine must be awaited. When life is jeopardized by the retention of bile through the prolonged occlusion of the ductus choledochus, the danger may be averted by the establishment of a fistula from the gall-bladder through the abdominal wall; the escape of bile, even when continued for a year, does not usually materially affect the health. If, however, life is threatened from this cause, the very difficult operation of cholecyst-enterostomy may be attempted, it having been once successful. Cystotomy, when indicated, must now be considered as a perfectly justifiable operation, cholecystectomy being also thought of in cases of chronic formation of stone.

SENDLER reports (*Ibid.*) a case in which after cholecystotomy and removal of numerous stones, death occurred, and the autopsy revealed dilatation of all the ducts down to their smallest branches, which were filled with inspissated bile and a multitude of fully formed faceted concretions, varying in size from a pea to a cherry stone. KÖHL publishes another successful case of cholecystectomy for *hydrops vesicæ felleæ*, and HELFERICH (*Fortschritte der Medicin*, Jan. 1, 1888) holds that the eleven reported cases with continuing good health of the patients appear to show that the gall-bladder is a non-essential organ. KAPPLER (quoted by HELFERICH) reports (*Corres. für Schweizer Aerzte*, Sept. 1, 1887) a case in which the common duct being occluded by a pancreatic tumor, a fistula between the gall-bladder and the bowel was successfully established in a man, æt. fifty-five, and was followed by rapid disappearance of jaundice and other symptoms. The case men-

tioned by HIRSCHBERG was doubtless that of WINIWARTER, done in 1882, and was a colo-cholecystotomy. GASTON, of Atlanta, in the same year recommended duodeno-cholecystotomy, and demonstrated its feasibility by experiments on dogs.

DR. E. KÜSTER (*Archiv für klinische Chirurgie*, vol. xxxvi., 1887) reports two cases of operation upon the gall-bladder, in both of which the wound was stitched and the viscous returned to the abdomen. In one there had been an ulcerative perforation secondary to stone, and escape of bile; the patient died. In the second case there was found in conjunction with stones in the gall-bladder and in the cystic duct an enormous distention with a clear viscous fluid; this case recovered. Dr. Küster claims that in certain cases this operation is to be preferred to cholecystectomy, especially as it cannot yet be considered as demonstrated that the gall-bladder is a superfluous organ. He calls attention, too, to the fact that we cannot yet judge fairly of the final results of its removal, and alludes to the sequelæ of total extirpation of the thyroid as having only been noticed after the lapse of years. Tait, Bernays, and Courvoisier, have also practised this "ideale cystotomie." Langenbuch and Hirschberg have opposed it on account of the obvious dangers from imperfection of the stitches, or from incomplete healing. In two cases operated upon by HOFMOKL (*Wiener med. Presse*, 1887, No. 25) the gall-bladder was tapped with a trocar, and the stones were easily removed from its cavity.

MR. KNOWSLEY THORNTON reports (*Brit. Med. Journ.*, Nov. 26, 1887) two successful cases of cholecystotomy in which there were impacted stones in the common duct. In one the wound in the gall-bladder was sutured and the viscous dropped back into the peritoneum, in the other it was drained through the abdominal wall. He thinks that if experience shows that removal of the gall-bladder is nearly as safe as opening it and extracting the stones, there would be a great advantage in avoiding any possible future trouble from the fresh formation of stones. He calls attention to the special difficulties of those cases in which the gall-bladder is contracted and the stone impacted in the common instead of the cystic duct.

In connection with the cases in which the gall-bladder was sutured and returned the risk to which Mr. Morris has called attention should be remembered, viz., that of an impacted calculus in some part of the common or cystic duct beyond reach of the finger or forceps.

MR. W. A. MACKAY reports (*Lancet*, December 24, 1887) the case of a female, æt. forty, in whom the presence of jaundice, colicky pain, an intermittent tumor in the region of the gall-bladder led to the performance of cholecystotomy. A very moderately distended gall-bladder was found, with a small stone impacted in the cystic duct. This was easily removed. The patient died a few weeks later of cancer of the pancreas and left lobe of the liver.

MR. J. W. TAYLOR reports (*British Med. Journ.*, January 21, 1888) a case of gall-stone impacted in the cystic duct so firmly that it could not be dislodged or broken up. The opening in the gall-bladder was sewed to the edges of the abdominal wound, and a large rubber drainage tube put in place. The wound and gall-bladder were syringed out with warm water night and morning. Sixteen days later the stone was seized with Lister's sinus forceps, broken easily, and removed through the wound, which then healed promptly. Mr.

Taylor emphasizes the three following points: the daily use of the syringe; the taking advantage of the softening of the stone; the use of proper forceps, and thinks they will simplify the difficult cases of cholecystotomy with impacted gall-stone.

[In a case we recently operated upon the diagnosis of gall-stones was based upon a history of intermittent hepatic pyrexia, jaundice, abdominal enlargement in the region of the gall-bladder, etc. A free abdominal incision made along the line of the costal cartilages and enlarged by a shorter vertical cut, permitted careful examination of a large area. The gall-bladder was normal in size and consistence. The cystic and hepatic ducts could be plainly felt, and the common duct traced inward into a mass of adherent intestine and omentum where it could no longer be clearly followed. There was diminished mobility of both liver and intestines from prior adhesions. Extensive perihepatitis was present. The right lobe was greatly enlarged and hardened. Free oozing took place whenever the surface of the liver was touched, however gently. The wound was closed. The patient had no shock whatever, and six hours later her temperature and pulse were normal, but the following day there was a rapid rise of temperature, such as she had been previously having at short intervals, and great increase of jaundice. She died on the succeeding day.

An autopsy, made by Professor Osler, in whose practice the case occurred, revealed a small stone at the extreme orifice of the common duct (which was much lengthened), lying just beneath the mucous membrane of the duodenum, and situated not less than ten inches from the wound at the level of the surface of the abdomen. An hour's careful dissection was necessary to disengage the duct and duodenum from adhesions to surrounding structures. The stone could not be forced into the bowel, nor backward further than the point of origin of the ductus choledochus. It could not have been reached without the introduction of the whole hand into the abdominal cavity, and if it had been found could hardly have been dealt with in an operative way, except by lithotripsy through the walls of the duct by means of padded forceps. It is evident that no permanent benefit could have resulted. The wound was in good condition at the time of the autopsy, no hemorrhage had occurred, the general peritoneal cavity was entirely free from exudation or inflammation. There was a localized peritonitis over the hepatic region. The liver was cirrhotic, and contained a half-dozen cicatrices of gummata. The kidneys were enlarged and hard.

The case well illustrates the point made by Mr. Morris which has been mentioned above, viz., the possible existence of a stone beyond the reach of the operator, as well as that of Mr. Thornton as to the increased difficulty of such operations as compared with those in which the stone is readily found in the cystic duct.—ED.]

CYSTIC TUMOR OF THE KIDNEY REMOVED BY ABDOMINAL SECTION.

DR. A. VANDERVEER reports a case of a large cyst, thought to be ovarian but found to be renal, which was successfully removed together with the kidney by median abdominal section. Subsequent to the operation the early history of the case was obtained, and it was found that the tumor had originated in the right side near the liver, and had grown downward reaching the

crest of the ilium. It had been aspirated several times, several quarts of clear serum being removed on each occasion. The patient made a good recovery, and at the time of the report was passing twenty-four ounces of urine daily.

NEPHRECTOMY WITH ACCIDENTAL WOUNDING OF THE BOWEL.

VON DITTEL reports (*Wiener med. Wochen.*, 41, 1887) a case of pyelitis accompanied with enormous distention of the kidney. The tumor, which occupied the space between the ilium and the false ribs on the left side, varied in size, the variation having a significant relation to the urine, which was clear when the tumor was large, purulent and offensive when it was small. The abdomen was opened, the adhesions separated, the tumor opened, discharging an enormous quantity of fetid pus, and the pedicle tied and separated. It was then found that the intestine had been wounded to an extent of about one-quarter of its circumference. The wound was sewn with the Lembert suture and the peritoneum by interrupted suture. The patient finally recovered, though primary union of the intestinal wound did not occur, on account, probably, of a severe diarrhoea during a few days immediately after the operation.

THE RADICAL CURE OF HERNIA.

The change which has taken place in modern surgery as a result of the introduction of antiseptic methods, is nowhere better seen than in the rapidly increasing frequency of operations for the radical cure of hernia and their great apparent success. At the annual meeting of the British Medical Association, held last year in Dublin, a series of interesting papers was read, which have only recently been published in full. (*The British Med. Journ.*, Dec. 3, 10, 17, 1887.)

The most important points to be noted are: (a) The treatment of the sac. (b) The treatment of the rings and edges of the canal. (c) The after-treatment as to the employment of pressure by truss or otherwise. Many details which cannot be considered as unimportant must be omitted from a brief summary, and should be studied in the original papers, which were remarkably concise and practical. Strict antiseptic methods were employed in every case.

DR. MACEWEN carefully separates the sac from the entire inguinal canal and from the abdominal aspect of the internal ring; fastens a stitch in the fundus, throws the whole sac into a series of folds, transfixing them with the same stitch carried through one after the other up to the ring, threads the free end of the stitch in an eyed needle, and passes it through the abdominal wall an inch above the upper border of the internal ring, the skin at that point being pulled up so that it is not included. While traction is made on that thread, pulling the sac into the ring, so that its distal extremity is furthest backward and upward, the conjoined tendon is pierced by a ligature, so as to leave a loop inside; the lower end of that stitch is then carried through Poupart's ligament from within outward, the upper end through the transversalis, internal and external oblique muscles. Similar stitches may be introduced lower if necessary. The free end of the ligature through the sac is then fastened by passing it several times through the external oblique muscle, and

the other stitches are tied, closing the internal ring. Chromicized catgut is used for these sutures, and to unite the skin. A decalcified bone drainage tube is laid in the lower angle of the wound. No truss is used. He states that the principle of the operation may be applied to femoral hernias, but gives no details.

MR. BANKS dissects out the sac, opens it, replaces bowel, ties and cuts away adherent omentum, pulls the sac well down, ligatures it as high in the canal as possible, and removes it. Finally, the pillars of the ring are brought together by two or three silver sutures, which are left in position. In femoral hernia the cleaning and removing of the sac constitute the whole operation. In ventral and umbilical hernia the sac is used as a plug to stop the aperture. He considers "freshening" the edges of the canal with the idea of securing union, to be "utter nonsense." He encourages his patients to wear light trusses afterward.

MR. BALL isolates the sac completely, twists it on itself four or five times, and transfixes it with two sutures, passed first through one pillar of the ring, then through the sac, and then through the opposite pillar, after this the sac is excised, and the sutures tied over leaden plates. He objects to the subsequent use of a truss.

MR. STOKES dissects the sac from the elements of the cord, divides it between two catgut ligatures, twists the proximal portion until distinct resistance is felt, and transfixes it with two silk sutures passing through both pillars and walls of the canal. These are brought through the skin an inch from the incision on either side, and tied "button fashion" over a leaden plate. He thinks the sutures serve a merely temporary purpose, and should be introduced loosely, and objects strongly to the permanent metal sutures. He is convinced that the after application of the lightest truss, fitted with a pad, is hurtful, and uses a linen dressing known in Dublin as "Harrison's truss."

MR. BARKER clears the neck of the sac close to the external ring, surrounds it with a silk ligature, opens it longitudinally, to see that it is free from gut or omentum, ties it tightly, leaving long ends to the ligature, and cuts it away, allowing the lower portion to take care of itself. One of the ligature ends is then threaded in a needle, which is carried up the inguinal canal, forced through one border of the internal ring, and out through the external oblique muscle, the other end is put through the opposite border, when the two are tied, drawing the stump of the sac into the internal ring and closing it. The walls of the canal are then closed by four to seven ligatures; the ends are cut short. The skin wound is then stitched. No drainage is used. The use of trusses is avoided.

MR. FRANKS closes the internal ring with silver sutures, two or three in number, transfixing the sac and excising it below them; he also closes the external ring. He leaves the sutures *in situ*, and believes their retention "materially fortifies the parts." He thinks a truss rarely necessary, and uses a cotton wool pad held in place by a bandage.

MR. MAYO ROBSON ligatures and excises the sac and draws the pillars together with silver sutures.

Other gentlemen reported cases, and MR. PUZEY called attention to the need of prolonged rest after these operations. The aggregate number of cases operated upon, including those in which strangulation was present, was about

450; the deaths from the operation were very few; but the total percentage on the whole number of operations cannot be calculated, as exact figures was not given in each case. The mortality was, however, beyond doubt very trifling, as taking, for example, the cases of Macewen, Barker, Ball, and Franks, we have an aggregate of 168 cases without a single death. Only 10 deaths are mentioned out of the whole number, and of these 2 were from bronchitis.

RESECTION OF THE RECTUM.

BARDENHEUER describes (*Volkmann's Sammlung klinische Vorträge*, No. 298) an operation by which he removes the rectum, leaving the sphincters untouched. The sacral ligaments and the sacrum itself are cut through, the rectum is brought into the wound by means of the index fingers, which can readily be introduced, and its fascial connections are stripped from it in the same manner. It is cut through well above the disease limits, its anterior attachments gently separated, and it is then severed above the sphincter. The two remaining portions are carefully stitched together. The cut through the sphincter with which the operation begins is left unsewed. Bleeding is stopped by direct pressure with carbolized sponges. The operation can be performed in fifteen or, at the most, thirty minutes, and from two to four ligatures are now employed, when formerly, in similar operations, fifty to sixty were necessary. The details are given with great care, and should be read in the original article, as the results seem to have been sufficiently good to warrant the hope that many cases in which now lumbar colotomy seems the only resource, may be much more completely and satisfactorily relieved in this manner.

TREATMENT OF VESICAL TUMORS.

SIR HENRY THOMPSON, in recent lectures (*British Medical Journal*, January 7 and 14, 1888), reviews the subject of tumors of the bladder in the light of his most recent experience. The so-called "villous growth," or papilloma of the bladder, causing death by its irrepressible function of continuous bloodletting, is the most common of all these growths, and is improperly called "villous cancer," as it consists of normal elements the arrangement of which is also normal. When, in addition to the papillary enlargement, there is a considerable proportion of connective tissue at the base he employs the term "fibrous papilloma." He alludes to the simple mucous polypi, the myomata, and the dermoid tumors as rare varieties of vesical growths, and scirrhus and sarcomata as comparatively infrequent in the adult. Epithelioma is more common.

At the outset of a vesical tumor undue frequency of micturition is commonly the only sign. Hemorrhage occurring next, may be distinguished from that of calculus, first, by its greater abundance, next by the absence of pain and vesical irritation. If the blood comes from the kidney it is brownish not florid, and is almost invariably mixed with the urine, not following it, or, more rarely, preceding it, as in vesical or prostatic growths. Microscopic examination made after washing out the bladder with clear water subsequent to sounding may reveal typical papillomatous structures. Only in cancerous

growths can the diagnosis usually be made by the sound or by rectal examination.

No operation should be attempted in malignant growths. The non-malignant growths may be divided into two classes: 1st. Those cases in which microscopic evidence of the presence of papilloma is wanting but the symptoms strongly point to it. Here digital exploration through a perineal opening should be made and the growth removed by that channel, or, at the same sitting, by a suprapubic cystotomy, the perineal incision not interfering with the latter operation.

The second class, in which the microscope has established the diagnosis, should be operated on by the suprapubic method, the growths removed by blunt forceps if possible, and the wound treated as after suprapubic lithotomy. Sir Henry Thompson has now operated on thirty-eight patients, in five with complete success; in several with recurrence leading to second operation; four deaths took place within a few days after the operation, two from cystitis and peritonitis; two died from blood poisoning, each on the twelfth day.

Dr. F. S. WATSON (*Boston Med. and Surg. Journal*, November 3, 1887) reports a case of sessile papilloma removed by the suprapubic method. The bladder was sutured and a perineal drainage tube used, but the sutures broke under the strain of vesical tenesmus, apparently due largely to the presence of the tube, which failed to drain and was withdrawn. The patient was well in seven and a half weeks. Dr. Watson favors the practice of Guyon as to the performance of a palliative operation, at least for drainage, in cancerous growths. He believes with Thompson in the general advisability of perineal section, as a preliminary operation for fixing the exact nature and location of the disease in doubtful cases, except where there is enlargement of the prostate. As a supplementary operation for purposes of drainage, he thinks it useful if the bladder is sewed, but otherwise unnecessary. As to the suture of the bladder wound, his conclusions are: 1. Where hemorrhage is going on, or likely to occur to any great degree after the operation, it is better not to sew. 2. Where neither cystitis nor hemorrhage is present, suture. 3. Where some cystitis is present, the decision is doubtful.

MR. T. D. COLLIS BARRY (*Lancet*, September 17, 1887) reports three cases of cystotomy with perineal drainage in cases of advanced cancerous growths of the bladder. The indication in each case was distressing pain during micturition. Two cases lived nine months, one three months after the operation. In all great relief was afforded.

DR. HERMAN reports (*Ibid.*, December 10, 1887) a case of primary cancer of the female bladder in which a growth, the size of a small orange, was removed by vaginal cystotomy. In six months the growth recurred and was again removed. Six months later on recurrence a third operation was performed followed by death in twenty-four hours. A few weeks after each of the first two operations the vesico-vaginal fistula was successfully closed. The second growth was from a new and distinct portion of the bladder wall. The case was complicated by the coexistence of ovarian tumor. The vaginal operation was preferred to one per urethram, on account of the easier access to the interior of the bladder and the absence of danger of permanent loss of control of the bladder.

ENGELBACH and ROLLIN report (*Annales des Maladies Gen.-Urin.*, September,

1887) the case of a man, æt. fifty-one, from whom a vesical epithelioma was removed by galvano-cautery through a suprapubic incision. The upper and lower angles of the bladder wound and that between the recti were sutured with catgut, and the middle of the wound left open for the insertion of a drainage tube which was fixed to the skin. The result was excellent.

BUDOR reports (*Ibid.*, November, 1887) a case in which symptoms of bladder tumors having existed for twenty-four years, an autopsy revealed an infiltration of the base of the bladder said to be scirrhus. It seems probable that the case was one of late transformation of some simple growth, as such a history is clinically unknown.

LUXATION AND FRACTURE OF THE AXIS WITH SUBLUXATION OF THE ATLAS.

M. ANNEQUIN reports (*Archives de Médecine et de Pharmacie Militaires*, December, 1887) the case of a soldier who, after a fall upon the head, followed by severe pain but no loss of power, and by permanent inclination of the head to the right and persistent inability to rotate it, presented the following conditions: deep vague crepitus was felt at the first examination; the spinous process of the axis was unduly prominent, being displaced backward and to the left; a prominence on the posterior wall of the pharynx could be seen and felt, which proved to be the anterior tubercle of the atlas displaced forward and downward; the inferior border of the axis could be traced as a slight prominence between the first and third cervical vertebræ, which fact, taken in conjunction with the prominence of its spinous process, seemed to indicate a separation between the anterior and posterior portions of the axis—i. e., a double or bilateral fracture of its bony arches. The patient made a good recovery, there being at no time symptoms of spinal compression. The diagnosis was concurred in by MM. Ollier, Molière, and others.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,

PROFESSOR OF OTOTOLOGY IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE, ETC.

DIPHTHERIA OF THE EAR.

DR. ROBERT BARCLAY, in a paper read before the St. Louis Medical Society, October 22, 1887, has very ably discussed this important subject. He reminds his readers that the aural invasion of diphtheria is very insidious, usually comparatively painless, showing a marked tendency uniformly to assume the chronic form, and apt to produce very rapid and widespread destruction, with necrosis and burrowing, to neighboring parts. Among its probable effects may be expected one of the following: fetid discharges, often persistent, always annoying and disgusting; deafness, erosion of the

Eustachian tube, mastoid perforation, necrosis, facial palsy, meningitis, thrombosis, embolism, phlebitis, pyæmia, cerebral abscess, and death. These dangers, in view of the insidious onset of aural diphtheria, should lead to an early and frequent examination of the ear in every case of diphtheria.

Should the surgeon find an inflamed and bulging drum membrane, even if there be no complaint of ear-ache, it is his duty to make a free incision in the membrane, in order to permit the escape of matter, and thus check burrowing to deeper parts. Let syringing of the nasopharynx, if done, be performed with great care, lest morbid matter be forced from the pharynx into the middle ear. Whatever the local phenomena, "treat the patient, and in adopting modifying local measures for the management of an aural development of diphtheria, let free drainage, cleanliness, and antiseptics be the aim."

IMPEDED NASAL RESPIRATION AND PURULENT CATARRH OF THE MIDDLE EAR.

In a paper read before the Berlin Medical Society, December 7, 1887, DR. BARTH called attention to the importance of the relation of the nose to the ear, and the necessity of relieving nasal disease found in connection with otitis in its various forms. The aurist must insist upon the removal of every hindrance to nasal respiration, because only thereby is it possible to ward off the aural maladies, which are always imminent in nasal diseases, and to prevent both acute and chronic catarrh of the nose and ear. If this teaching is remembered and acted upon, many diseases of the ear can be prevented, and also a large percentage of ear diseases which otherwise would become incurable can be cured.

EXCISION OF THE OSSICLES OF THE DRUM OF THE EAR FOR CHRONIC PURULENT INFLAMMATION OF THE MIDDLE EAR.

DR. SAMUEL SEXTON, of New York, presented a paper with the above-named title, at the last meeting of the American Otological Society (July 19, 1887).

Within the past year further observations of the benefits of this operation have been made by Dr. Sexton, upon nineteen cases—thirteen females and six males. Seven were between 5 and 12 years of age, eight between 13 and 20, and four between 23 and 40 years of age.

The conditions under which the operation was undertaken were, in most cases, chronic and offensive discharge from the ear, with frequent "gatherings and breakings," with obstruction to drainage from the attic and antrum. The patients were usually very deaf and suffered from distressing tinnitus and autophony. Their general health was not good, and the pathological condition of the drum was in all cases one of irremediable impairment of the transmitting apparatus.

The resection must be done under ether narcosis, the patient lying on the back, upon a table so constructed that the head and body can be raised at a convenient angle. The electric light is almost an essential (obtained from a small 6 to 10 candle lamp held on the forehead by means of a head band, like

the head-mirror) since the open light of any gas flame would subject the patient to the risk of fire.

The first step consists in detaching every remnant of the membrana from the tympanic ring. Then, if it has not been done by disease, the incudostapedial joint is to be divided by means of a small knife of special shape. The malleus is then freed from its attachments, including the tensor tympani muscle, and all tendinous connections. After mopping the cavity free from blood, the bone is seized with stout forceps—i. e., foreign body forceps, designed for ear work (Sexton's)—as high up as possible, and by gentle traction gradually brought away. Then the long process of the incus is sought. Where it is attached to the stapes, the long process generally hangs down in situ and in easy view. But where the incus has been separated from the stapes by disease, its removal is by no means easy, since the long process may have been eroded, or, if remaining, the entire bone may be swept from view, and yet lodged upon the scute behind the margin of the tympanic ring, or displaced backward toward the antrum. Experience shortens the operation; from one hour the time may be reduced to ten or fifteen minutes. Very little inflammatory reaction is the result, as a rule. Some infiltration of the parts may be expected. In cachectic subjects the discharge may continue until the general health is improved.

A marked improvement to hearing occurred in most of the nineteen cases operated on, the gain varying from 75 per cent. to 100 per cent. The general health was generally improved after the operation, especially in phthisical adults and in children.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF
J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

PRIMARY CARCINOMA OF THE TRACHEA: ITS DIFFERENTIATION FROM SYPHILIS.

Primary carcinoma of the trachea is exceedingly rare. MACKENZIE mentions but two cases, one reported by Langhans and one under his own care. In the *International Cyclopaedia of Surgery*, Cohen has tabulated eleven instances, none of them in his own practice, to which may be added one by Beebe, a practitioner of homœopathy (*Hahnemann Medical Journal*), and now one recently reported by GERHARDT (*Berliner klinische Wochenschrift*, December 5, 1887, p. 933), the specimen from which was exhibited and described by VIRCHOW to the Berliner Medicinische Gesellschaft on November 16th. The rarity of primitive carcinoma of the trachea probably insures a record of every recognized instance. Thus there is a total of but thirteen; in marked contrast to the number of published cases of carcinoma of the larynx, and the probably still greater number unreported.

Gerhardt's patient was a peasant woman, thirty-eight years of age, with no history of disease other than measles, and who had menstruated regularly from her fifteenth year. The symptoms of the disease began in the summer of 1886 with dyspnœa, augmenting to such an extent as to preclude continuous labor by the spring of 1887. At this time cough began, with expectoration of mucus, tinged at times with blood. At a later date the amount of expectoration measured from 6 to 9½ ounces daily. By the end of August the patient became confined to bed. The voice had not undergone alteration further than a slight rise in pitch. In May, 1887, pains began in the left heel, spreading later to the sole of the foot and then along the lower extremity. The patient entered the hospital on September 22d and died November 13th. When admitted, a slight thickening in the jugular fossa was observed and was attributed to tumefaction of the middle lobe of the thyroid gland. This point was painful. Pressure upon it provoked cough. Laryngoscopic inspection furnished but negative results at first, but after frequent examinations with the head bent forward, a constriction of the trachea was observed in the region of the fifth cartilage, due to a yellowish projection fissured in its centre, which bulged slightly during the expiratory phase of respiration. It did not reduce the vital capacity below 225 cubic inches. Tubular bougies $\frac{1}{4}$ – $\frac{1}{2}$ inch in thickness were passed into the trachea on five occasions, producing amelioration at first, but subsequently provoking dyspnœa and bloody expectoration, so that the procedure had to be abandoned. Eventually tracheotomy became necessary on account of severe suffocative paroxysms. Although the dyspnœa was thereby diminished a little, the mucous expectoration occluded the passage and the patient succumbed. The diagnosis of carcinoma had been made on general grounds; although microscopic evidence from the sputa afforded no indication thereof.

The tumor, as described by Virchow, consisted of a considerable tumefaction of the walls of the trachea and adjoining tissues located in its middle portion but more to the left and about 1½ inches above the bifurcation. Ulceration had taken place with perforation of the mucous membrane but without the slightest papillary outgrowth. The œsophagus and the thyroid gland were entirely free from disease. Some small nodulous particles on the outer portion of the growth might be affected lymph glands or only accessory nodules of the original tumor. The cancer contained neither squamous nor cylindric epithelium, but a very polymorphous small-celled epithelium rather widely different from the normal forms in the same location. Its structure was more analogous to that of the mucous glands than to any other. It was found, on further examination, that the epithelium, and even that in the pulmonary nodules, was everywhere arranged in long, many branched, and anastomosing strands, the distribution resembling most that of the lymph canals.

Gerhardt also called attention to points which might be utilized in the differentiation of carcinoma from syphilis of the trachea. The latter commences with phenomena of irritation, cough, and expectoration of masses of mucus, of blood, and sometimes of detached fragments of cartilage; those of dyspnœa occurring much later. The recognition of syphilitic constriction in the irritative stage permits, as a rule, of its permanent relief. After the stage of dyspnœa begins, the reparative process is attended with further constriction

by traction of the cicatricial tissue, the more that the ulceration is frequently just above the bifurcation.

The case of cancer began with dyspnoea in the summer of 1886, an irritative cough did not take place until the following May. In syphilitic constriction the disease begins with ulceration, while in the case of cancer it evidently did not occur until some time later.

INDICATIONS FOR THYROTOMY AND FOR LARYNGECTOMY IN CARCINOMA OF THE LARYNX.

MM. CH. MONOD and A. RUVAULT (*Gaz. Hebd. de Méd. et de Chir.*, Dec. 16, 1887, p. 821) presented to the Académie de Médecine, a larynx containing an epithelioma limited to the right vocal band, with photographs of the fresh specimen and some histological sections. The history of this case and the character of the specimen seem to indicate the probability that the patient could have been saved by timely division of the larynx and extirpation of the malignant growth without sacrificing his larynx in either a total or unilateral laryngectomy.

The specimen presented a tumor larger than half a filbert, developed at the expense of the ligamentous portion of the right vocal band, the anterior portion of which band for the length of 2 mm., and the posterior part for a length of between 4 and 5 mm. were perfectly healthy. The intermediate portion of the band served as a pedicle to the tumor, but was not adherent in any manner to the subjacent internal thyro-arytenoid muscle, which, with the entire remainder of the larynx, was perfectly healthy. Microscopic examination by Dr. Gombault and Prof. Cornil determined the tumor to be a lobulated cornifying epithelioma containing numerous isolated epidermic nests. The squamous epithelium of the vocal band was still visible at the surface of the tumor, which was ulcerated at its anterior portion, and which, at several points of the intermediate portion submitted to microscopy, showed a certain number of commencing ulcerations.

When first seen, late in October, 1887, the patient, a robust man of sixty-three, with no morbid symptom but an aphonia of five months duration following hoarseness which had supervened rather suddenly ten months previously, had been troubled for a few days with excessive salivation, and with cough attended with the expectoration of discolored sputa tinged with blood. Laryngoscopic inspection revealed general hyperæmia with an eroded tumor the size of less than one-third of a filbert, in the median portion of the vocal band. The diagnosis of carcinoma was made at once, and the following line of surgical treatment laid out: Tracheotomy as low down as possible; habituation to the presence of the Trendelenburg canula; splitting of the larynx and removal of the mass with the electrocaustic knife; with an intention to perform unilateral laryngectomy in case the limitations of the disease should turn out to be illy circumscribed. Circumstances prevented the adoption of this plan for some two weeks or more, during which time the tumor had grown to the size of half a filbert, so as nearly to fill the glottis, the ulceration having extended a little in all directions and with excavation. Tracheotomy was performed November 15th. The thyroid gland being found calcified, the trachea had to be opened just below the cricoid cartilage; and the

escape of blood from the thyroid veins severed was such that penetration of a certain quantity into the bronchi could not be prevented. On the evening of the second day fever ensued; on the morning of the third day dyspnoea became excessive, an intense blowing being heard at the middle of the right lung; asphyxia rapidly followed and the patient succumbed on the same day.

The *post-mortem* examination shows that the plan of operation proposed would have been perfectly feasible.

A similar case occurred in the practice of Billroth (Salzer, *Archiv f. klin. Chir.*, xxi. p. 848). A patient had an epithelioma limited to the right vocal band. Laryngo-fissure was performed one year after the onset of the symptoms, and there had been no recurrence as late as two years and nine months after the operation.

JULES BOECKEL (Schwartz, *These d'agrégation*, 1886) operated on a patient with epithelioma with epidermic nests which occupied not only the left vocal band but also the ventricle and the aryepiglottic fold; and there had been no recurrence up to four and a half years after operation.

CARCINOMA OF THE LARYNX; AN EARLY PROPOSAL OF EXCISION.

DR. E. KÆBERLÉ reports (*Gaz. méd. de Paris*, December 10, 1887, p. 595) a case of polypous and papillary tumors of the larynx in which, in 1865, he split the larynx anteriorly, removed the growths, cauterized their points of implantation with acid nitrate of mercury; kept the wings of the larynx asunder for three weeks with a horseshoe spring of steel wire, and, too, for more than a year and until the patient's death, maintained patency of the artificial opening with a canula, not for purposes of respiration, but for purposes of getting access to the parts in case of recurrence. While no recurrence took place at the site of the original tumor in the left vocal band and immediate vicinity, excessive papillary vegetations were produced deep down in the trachea and were removed from time to time until they finally exhausted the patient by suffocative dyspnoea, tracheal catarrh, and progressive asthenia.

Kæberlé states that this patient proposed to him that he should "excise his stenotic air-tube and replace it with a metallic one."

DR. J. SOLIS-COHEN describes (*The Medical News*, December 3, 1887) the larynx of a patient from whom, nearly twenty years ago, he removed by external access an epithelioma occupying the left vocal band and other tissues; a large portion of the vocal band and the entire lining membrane of the ventricle being removed. Compensatory tissue doing service as a vocal band had been formed at the expense of the ventricle, which had undergone eversive obliteration in great part in the process.

A NEW ŒSOPHAGOSCOPE.

PROF. STOERK (*Wiener med. Woch.*, Aug. 20, 1887) describes and depicts a new instrument in which the œsophageal tube is rectangularly rigid instead of being movable, but is telescoped in such a manner that it may be lengthened out after it has been inserted. It appears to be a much simpler and more readily manageable instrument than his former ones. He states that by the use of cocaine even inexperienced persons can introduce the instrument in a few seconds without exciting the slightest pain.

SYPHILIS OF THE TRACHEA AND OF THE THYROID GLAND.

DR. EUGENE FRÄNKEL, of Hamburg (*Deutsche medicinische Wochenschrift*, December 1, 1887), details and illustrates the post-mortem appearances of a case of extensive gummatous infiltration and stellate cicatrization of the trachea and bronchi, with gummatous disease of the thyroid gland, which proceeded without symptoms; the patient, a female, forty-one years of age, laboring until within six days of her death.

He calls attention to the great sclerosis of connective tissue surrounding stenotic portions of the air-passages, which does not seem to be fully appreciated by authors; and to the imbedding of the recurrent nerve, as in one of his cases illustrated, as a factor in peripheral unilateral paralysis of the larynx. He, likewise, emphasizes the fact that all syphilitic strictures of the trachea are not surrounded with peritracheal sclerosis, and he pictures two views from a case of direct perforation of the œsophagus from Curschmann's clinic in which there was no infiltration of the connective tissue. He discusses the rarity of gummatous disease of the thyroid gland, less frequent in acquired than in hereditary syphilis, shows that it has been observed only in association with visceral syphilis, that it presents no histological difference from gummata in other organs, and that there are no clinical manifestations by which its existence can be indicated.

ARTIFICIAL DIGESTION OF IMPACTED MEAT IN THE ŒSOPHAGUS.

DRS. BOBBETT and BATTLE (*N. C. Med. Journ.*, Oct. 1887, *Med. and Surg. Rep.*, Nov. 19, 1887, p. 688) relate an instance of impaction of a mass of ham in the œsophagus, producing complete occlusion, in a child three years of age, the subject of a stricture of eighteen months standing, the result of glutition of lye. All efforts at extraction failing, they injected into the œsophagus a digestive mixture composed of thirty grains of trypsin and ten of sodium bicarbonate in an ounce of water, following this by occasional draughts of the mixture. Swallowing became practicable just forty-eight hours after the impaction; vomiting occurred shortly after, and a number of meat fibres were found in the vomit. The morsel had in all probability become disintegrated by the digestive mixture, and then been carried down by a draught of water.

INTRALARYNGEAL REMOVAL OF A TUMOR OF AT LEAST TWENTY-FIVE YEARS' STANDING.

The great length of time for which an histologically benign neoplasm may sojourn in the larynx is exemplified in a case of extensive papilloma recently removed with forceps by DR. CHARLES A. TODD, of St. Louis (*St. Louis Courier of Medicine*, January, 1888, p. 18). Attempts to remove this growth had been made in England as far back as 1862. The patient had been aphonic since 1854, or for a period of thirty-three years.

For eight or ten months previous to examination by Dr. Todd, he had been obliged to sleep in the sitting posture, sometimes awakening six to twelve times a night with a choking sensation whenever he fell backward. Deep breathing was impossible. The voice was only a hoarse whisper. The tumor

apparently completely filled the larynx. It had the appearances of papilloma and evidently sprang from the anterior part of the larynx and near the base of the epiglottis.

After the operation the voice became strong and resonant, though rough and husky, the weight of the patient increased, and his general health to appearance became perfect.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

PROFESSOR OF DERMATOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

AND

HENRY W. STELWAGON, M.D.,

PHYSICIAN TO THE PHILADELPHIA DISPENSARY FOR SKIN DISEASES.

LEUKÆMIA CUTIS.

HOCHSINGER and SCHIFF (*Viertelj. f. Derm. u. Syph.*, 1887, 3 Heft) report a case of this very rare form of cutaneous disease, the same being only the third on record. The two other cases were reported by Biesiadecki and by Kaposi. The patient was a boy eight months old, with marked leukæmia (general swelling of the lymphatics, tumor of the spleen, enlargement of the liver, and increase of the white blood-corpuscles), and whose entire skin, especially of the face and head, was studded with numerous pin-head to hazel-nut sized infiltrations of, for the most part, a nodular and rounded form, sometimes umbilicated. They were of a yellowish and brownish-reddish color, were firm, and were movable with the skin over the loose connective tissue. Microscopic examination showed them to be composed entirely of lymphoid cell elements in the skin identical with the lymph cells of the blood. Here and there existed a scanty, finely reticular stroma. The authors favor the use of "leukæmia cutis" to express the condition, rather than the "lymphoderma perniciosum," proposed by Kaposi. The disease has no relation to mycosis fungoides—the "lymphadenie cutanée" of French writers.

LEPRA AND SYPHILIS.

DR. E. ARNING (*Monatsh. f. prakt. Derm.*, 1887, No. 15) (whose studies were made in the Sandwich Islands) expressed himself before the Medical Society of Hamburg on the subject as follows. He believes that leprosy is more allied to tuberculosis than to syphilis. It differs from syphilis in the following points: It is not transmissible through the semen, ovum, or placental circulation; it shows no characteristic disease in the fœtus; it possesses no primary infection nor typical incubation period; it enters the system stealthily through unknown avenues, and pursues its course toward a fatal termination, spontaneous cure being rare; it shows a marked disposition

to select certain organs, and the inflammatory new growths manifest but little tendency to break down; the central nervous system as a rule remains unaffected, but the peripheric nerves, especially of the trophic and sensitive system, are the special seat of the disease. Bone lesions are secondary, and are not of a local nature, being dependent upon severe trophic nerve disturbance; new growths of bone and primary joint affections are also wanting. Spreading, serpiginous ulcerations of the skin and mucous membrane, common in syphilis, are likewise not met with in lepra. Lepra spares the hair of the scalp; shows no disposition to attack the genitalia, anus, or mouth; and, finally, remains uninfluenced by mercury and iodide of potassium. Microscopic examination shows bacilli in great numbers in the tubercular manifestations, but they are not found in the erythematous, papulo-circinate, and bullous forms of the disease. The lesions of the deeper structures, especially of the bones and muscles, are due to the disease attacking the nerve trunks.

ELEPHANTIASIS IN CHILDREN.

MONCORVO (*Monatshf. für Derm.*, 1887, No. 16) states that the usually accepted view that this disease (elephantiasis arabum) is met with only in adults, is erroneous. In his clinic at Rio de Janeiro, forty-one cases occurred in children out of one hundred and eighty-three cases in all. In a group of twenty-four cases, twelve were males and the same number females, the oldest being fifteen years of age. In another series of seventeen observations, occurring in adults, it was shown that the disease began between the ages of two and twelve years.

A CASE OF RÖTHELN OCCURRING DURING THE PUERPERIUM.

Brief notes of röteln developing a few days after delivery are reported (*Boston Medical and Surgical Journal*, August 18, 1887) by KITE. The temperature at the outbreak reached 105.5°, gradually subsiding to the normal. The eruption invaded the whole body, including face and scalp, and was followed by desquamation. The patient had not been out of the house for three weeks prior to confinement, and so far as known there had been no case of röteln in the neighborhood for two weeks.

SOZIODOL IN CUTANEOUS DISEASES.

OSCAR LASSAR (*Therap. Monatshefte*, No. 11, 1887) finds that this remedy in five and ten per cent. strength, in the form of dusting-powder and paste (with zinc, starch, and vaseline or lanoline), brings inflamed and irritated skin to a mild desquamation without causing reaction, and that it exerts a rapid and beneficial influence on recent as well as on more chronic eczemas, tinca circinata, tinca tonsurans, impetigo, and ulcers. In many respects the action of the remedy is similar to that of salicylic acid, but it may be used stronger without the danger of exciting artificial inflammation.

TREATMENT OF MELANODERMA.

LELOIR (*Monatshefte für prak. Derm.*, No. 24, 1887) recommends, for the treatment of this affection, that the skin be first thoroughly cleansed with a

mild potash soap or alcohol, and then repeated applications of a solution of 100 parts chloroform and 15 parts chrysarobin. After this dries in it is painted over with traumaticin (liq. gutta-percha). The author has used this remedy in numerous cases of pigmentation due to different causes, in three cases of flat pigment-nævus (nævus spilus), as well as in two cases of pigmentary nævus the size of a silver dollar with good results. In two of the last cases the application was preceded by a salicylic acid ointment, which it was thought aided the action of the chrysarobin.

SEBORRHOEAL ECZEMA.

UNNA'S studies have led him to conclude that (*Journ. Cutaneous and Genito-Urinary Diseases*, December, 1887) the sebaceous glands are practically not involved in the different forms of disease called seborrhœa. The oily form arises from a hypersecretion of the sweat glands, and should be rightly named "hyperidrosis oleosa." The other variety of so-called seborrhœa, Unna looks upon as a form of eczema—eczema seborrhoicum.

The starting point of seborrhœal eczema is usually the scalp, or occasionally upon one of the well-known surfaces rich in sweat glands, as the axilla and cruro-scrotal fold. The affection begins as a latent catarrh of the skin, characterized by an agglutination of epidermic scales, and a faulty distribution of the oil secretion, the hair becoming abnormally dry from closing of the hair follicles, while the epidermis and exfoliating scales are abnormally fatty from the hypersecretion of oil from the sweat glands. In one class of cases this continues, possibly becoming more marked, more or less loss of hair occurring; finally baldness may ensue, and then the scaliness soon disappears, to give place to "hyperidrosis oleosa" (seborrhœa oleosa). In another class of cases the scaliness rapidly increases forming fatty crusts, with accompanying loss of hair; the disease spreads to the forehead, neck, and also may involve the nose and cheeks. In the third class of cases the catarrhal appearances are most pronounced, "weeping" may occur. The scaliness is lost, and instead there is found a dark red, moist and shining basal horny layer—in fact, all the common symptoms of eczema. The first (scaly) class represents the affection commonly known as pityriasis capitis; the second (crusty), seborrhœa sicca; and third (moist) many affections heretofore considered as forms of eczema capitis.

The next favorite site is the sternal region; here the crusty form is found almost exclusively. In the axilla the moist form is most common. It may spread from the shoulder down the arms, preferably upon the flexor surfaces. The back of the hands and fingers are also often affected with the moist form, while at the same time the crusty variety is seen upon the scalp. On the palms and soles it appears as small heaped-up scaly masses, resembling psoriasis guttata; later the epidermis peels off. Its occurrence on these last named parts, the writer states, is a strong argument in favor of its independence of the sebaceous glands.

On the face, on bearded parts, it appears as a diffuse pityriasis or as circumscribed, reddened, itchy patches. There is no loss of hair. In women, it appears as grayish or yellowish scaly patches. Sometimes, on the face, small red papules appear on the forehead, cheeks, and nose, giving rise to the con-

dition described by the author as "eczematous rosacea." The face is also a favorite location for moist eczema seborrhoicum, especially in children. In the treatment of the different forms of seborrhœal eczema, sulphur is extremely valuable, especially in the moist variety; in other varieties chrysarobin, pyrogallol, and resorcin, are more useful. Tarry and lead salves are unsatisfactory. Internal treatment is seldom necessary.

THE PRIMITIVE PATCH OF PITYRIASIS ROSEA.

Basing his opinion upon an observation of eight cases of the disease, BROCC believes (*Annales de Derm. et de Syph.*, vol. viii., 10) that usually the affection is heralded by a solitary patch (called by him the plaque primitive), and that later, after a period varying from four to fifteen days, the eruption becomes suddenly more or less general. The initial patch is seen most frequently near the middle line of the waist anteriorly, but may also appear on the side of the neck, and upon the arm.

ON ECZEMA AND PSORIASIS.

MYRTLE reports briefly his observations (*Lancet*, December 3, 1887) on psoriasis and eczema, based upon an experience of forty years at Harrogate. The prevalent English opinion, that the two diseases are closely related to gout, the writer cannot support, but believes that, like every other aberration of health, when they occur in a gouty subject they are all the more difficult to cure.

Eczema is influenced by the state of the digestion and allied condition, as hepatic disturbance, etc. Psoriasis seems independent of such influences. The etiology of both diseases is, as yet, involved in obscurity, but "what we do know is that in both there is an abnormal activity in cell-life, and that this cell-proliferation is due to fitful nerve disturbance—vasomotor possibly, central frequently."

A case of eczema is quoted in which, after the disease had been improved under baths and other hygienic measures, the patient, of his own volition, applied counter-irritation to the back of the neck, instigated thereto by reading a favorable paper on this method of treatment by Crocker; the result was a sudden and general outburst of the disease.

Several obstinate cases of both eczema and psoriasis are given, showing the favorable influence of sulphur water, as baths and internally. The patients remain in the bath from thirty minutes up to one or two hours, according to circumstances. The author has found cool baths—in proper subjects—much more efficient than hot baths, the patient remaining immersed as long as possible without feeling chilled.

In other respects, these cases are treated, both internally and externally, according to individual demands.

PARENCHYMATOUS INJECTIONS OF CORROSIVE SUBLIMATE IN LUPUS.

The cure of a case of lupus hypertrophicus of the nose is reported (*Viertelj. für Derm. und Syph.*, 1887, Heft 4) by TANSINI by means of parenchymatous injections of corrosive sublimate. Swelling and edema of the affected and neighboring parts followed, but was inconsiderable and transitory, passing

away in a few days. In the beginning of the treatment the solution was of one-half per cent. strength, later one per cent.

ERUPTIFORM HYDRADENOMA.

Under the title "Hydradénomes Éruptifs," JACQUET and DARIER (*Annales de Derm. et de Syph.*, 1887, p. 317) describe the following case: The patient, a healthy male aged twenty-six, presented on the breast, below the collar-bone, and extending to the umbilical region, numerous painless nodules, varying in size from a pinhead to a pea. A few were also seen upon the flexor surface of the forearm. The rest of the surface was free. The nodules were uniform in character, and but slightly elevated. They were distinct to the touch, feeling as sharply circumscribed infiltrations; isolated and in irregular groups. In consistence they were neither hard nor soft. The overlying epidermis was glossy and free from scales. The lesion showed no orifices. The skin immediately adjacent was uninvolved. The largest nodules were just beneath the collar bone, the smallest at the umbilical region. The eruption was noticed eight years previously, appearing first at the upper part of the breast. There was no perceptible growth of the individual lesions noticed since their first appearance, but they had slowly increased in numbers. There were no subjective symptoms. Potassium iodide internally, and various external applications, were without result. The histological examination (given minutely in the original article) disclosed the nature of the lesions—"adenoïde epitheliome," having their origin in the sweat glands, and differing from other adenomata of these structures in the manner (histologically) of growth and degeneration, and also in the simultaneous sclerosis of the connective tissue.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA.

THE INDUCTION OF LABOR.

STRAUCK, of Moscow, reports 28 cases of induced labor, in the *Archiv für Gynäkologie*, Band 31, Heft 3, as follows:

His clinical material under observation was 54,088 births in fifteen years; he found the proportion of cases in which the induction of labor was indicated 1 in 1865 cases.

Contracted pelvis, with conjugatæ veræ from $1\frac{3}{4}$ inches to $3\frac{1}{4}$ inches, were the cause for inducing labor in 21 cases. Strauck emphasizes the difficulty of determining the degree of pelvic contraction present, and considers the simple procedure of pressing the head downward, through the abdominal walls, of great value as determining the possibility of its entrance into the pelvis. The induction of labor was performed 3 times for nephritis so advanced that

no other mode of treatment was possible. The habitual mortality in the children of 4 mothers was the cause for inducing labor with those patients, and the children so delivered survived.

Six methods were employed: Faradic electricity in 1 case; Braun's kolpeurynter in 2; injections of pilocarpine in 3; rupturing the membranes in 6; the vaginal douche in 20; the introduction of a bougie in 26.

The use of electricity was without result. The kolpeurynter was highly useful in checking hemorrhage and in aiding the action of a bougie. Pilocarpine, injected hypodermatically in 2 per cent. solution in full doses, produced only unpleasant general effects, and was utterly useless.

Rupturing the membranes proved a rapid means of inducing labor, when immediate parturition was necessary. Vaginal douches of 1 per cent. warm carbolic solution, injected without violence, and so directed that but little fluid entered the cervix, were employed daily in increasing frequency for six days; although successful they were inferior, as a means of treatment, to the bougie: they possess considerable danger of septic infection from careless administration.

The introduction of a bougie was found by far the best mode of inducing labor. A blunt-pointed, elastic bougie, new, Charrière No. 24, 13 inches long, was chosen, and its outer, hollow end closed. It was cleansed with soap, disinfected with 5 per cent. carbolic acid solution, and lubricated with glycerine. The bougie was introduced while the patient lay on her back, and was allowed to take any direction most feasible; it was usually impossible to ascertain in what portion of the uterus the bougie lodged. The endeavor was made to introduce the bougie so far that the external end rested against the posterior vaginal wall; if this was impossible, the bougie was fastened to a thread which passed over the groin, around the waist, and beneath the pelvis. Any position of the patient necessary was utilized, and the cervix was often steadied by forceps during the introduction of the bougie. The removal of the bougie was performed when the os uteri was fully dilated; when the liquor amnii had escaped; when hemorrhage occurred; when convulsions supervened, not yielding to ordinary treatment; often it had remained 24 hours in utero. The patient, who had been previously in bed, then rose, emptied the bladder and rectum, was given a sitz bath, and after she had rested several hours and had received disinfectant vaginal injections, one, two, or three bougies were introduced.

Strauck introduced bougies in 26 cases, 20 times after the treatment by douches had been begun. He believes that the preliminary use of douches is a hindrance, lessening uterine irritability, and he advises the direct use of the bougie. In 10 cases birth was spontaneous after the bougie had been retained on an average 25 hours. In 13 cases further operations were needed to terminate labor; in 3 cases the bougies failed.

In all, labor was induced 28 times, in 23 women; 21 of the children lived, 8 died. Of the 21 living children, 10 died in the hospital, 11 were discharged healthy. A comparison with the results of the modern Cæsarean section shows that induced labor presents a maternal mortality of nil; Cæsarean section of 11.8 per cent. Induced labor has an infant mortality of 55 per cent., Cæsarean section of 8 per cent. Strauck concludes that the infant mortality is so great in induced labor that it should give place to Cæsarean

section, since there is every reason to believe that Cæsarean section will lower its mortality steadily as operators become more practised.

THE INFECTIOUS CHARACTER AND PRESENCE OF BACTERIA IN THE LOCHIA.

DÖDERLEIN, of Leipzig, contributes to the *Archiv für Gynäkologie*, Band 31, Heft 3, an article under the above title, in which he reviews the previous investigations regarding the presence of bacteria in the lochia, and adds his recent studies. His conclusions are as follows: Under normal conditions the uterine lochia contain no bacteria; on the contrary, under the same circumstances, the lochia in the vagina contain countless germs of various kinds. The uterine lochia may be introduced into the animal body in any manner chosen, without producing reaction. The vaginal lochia, on the contrary, produce infection and abscesses when introduced into the bodies of animals.

The presence of germs of any kind in the puerperal uterus produces, as a rule, rise of temperature. After the fall of this elevated temperature the uterine lochia are free from germs. The removal of these germs is effected by the multiplication and secretion of pus cells. Before the temperature rises germs are present in the uterus; there must be, then, a period of incubation for these germs. Again, circumstances may arise which develop suddenly the latent injurious qualities of germs. Lochia taken from the uterus of a patient who has fever produce in animals symptoms of infection; it is only when such lochia contain but a few isolated germs, producing very slight symptoms, that animals can be inoculated with but trifling results. The vagina, although no vaginal examination has been made, may contain pathogenic germs (auto-infection). The uterine lochia of puerperal women suffering from puerperal sepsis in every form contain germs, and without exception streptococcus pyogenes is present. The development of germs *in utero* may result spontaneously without infection from examinations or operations.

Döderlein's conclusions agree with those of Kaltenbach, and both urge upon us, with great force, the disinfection of the vagina before and during labor.

SPONTANEOUS, PERFORATING RUPTURE OF THE VAGINA, WITH PARTIAL ESCAPE OF THE CHILD INTO THE ABDOMEN.

DÜHRSEN, of Berlin, reports the case of a multipara, who was brought to the care of the physician in a somewhat tedious labor. Examination led to the belief that twins were present, the head of one and the feet of the other presenting. After being in labor several hours the patient complained of sudden and great pain in the abdomen, and manifested symptoms of collapse. Examination revealed the abdomen occupied as far as the navel by an ovoid body, which proved to be the child; on the right side of this body was the firmly contracted uterus; to the left was a doughy mass, evidently blood. Vaginal examination found the feet in the vagina, the head was above the entrance to the pelvis, the cord was also presenting.

A large child was readily delivered by traction upon the feet; a mass of blood and the placenta followed. As alarming hemorrhage persisted, the accoucheur introduced iodoform gauze in strips, through an aperture at the junction of the vagina and cervix which communicated with the abdominal

cavity, and in which the intestines were felt. Compression of the abdominal aorta and the free use of stimulants were promptly practised, but the patient's condition was so alarming that salines were injected into the veins of the arm, with good results.

The patient reacted only moderately well, and her condition was considered hopeless. Twenty-four hours afterward the gauze was removed, and no hemorrhage followed; the abdomen was flaccid and non-sensitive.

The subsequent treatment was vaginal injections of $\frac{3}{10}$ per cent. salicylic acid, injected very gently, compression by bandages, an ice-bag on the abdomen, opium, ice, and stimulants internally.

Although the patient's temperature rose to 103.5° F., yet her pulse remained normal. She recovered in about six weeks. When discharged from the hospital examination revealed the uterus atrophic, in antelexion, and drawn to the left by a band of fibrous tissue in the left broad ligament. The cervix uteri was so small as to be hardly recognizable; the os uteri was extremely small. The vagina was triangular in shape, narrowed above, and in the left parametrium the remains of the laceration were felt, radiating inferiorly.

In commenting upon the case, Dürrsen recalls Schröder's observation that the early uterine contractions exercise considerable force, tending to tear the broad ligaments from their uterine attachments. Rupture in this locality gives no warning of its approach, differing in this respect from rupture in the lower segment of the uterus. In addition, a rachitic pelvis was present in this case, which increased the resistance to the child's head. The profuse hemorrhage which occurred came from the vessels of the ruptured broad ligament. The non-septic condition of the hæmatomia was owing to the iodoform gauze tampon, which has proved so valuable an agent. In the reported cases of rupture of the vagina during labor, the cervix uteri has always atrophied when recovery ensued, the present case conforming to others.

The peculiar presentation first encountered (the head and feet) was, in part, owing to the constriction of the abdomen exercised by a tight girdle which the patient was accustomed to wear.

The occurrence of rupture after but a few hours' labor pains, and in the absence of all efforts at delivery, is remarkable.—*Berliner klinische Wochenschrift*, No. 1, 1888.

INTRAUTERINE DOUCHES OF HOT ANTISEPTIC FLUID, AS HÆMOSTATICS.

AMBERTIN, in the *Archives de Tocologie*, closing number, 1887, reviews the literature of the subject and adds his results from 87 cases to whom intra-uterine injections of hot antiseptic fluids, at a temperature of 112° to 115° F., were given, to check post-partum hemorrhage. About a gallon of fluid was generally used, allowed to flow from a receptacle raised but slightly above the patient's bed. In 16 cases the douche was given independently of ergotin, and its effect was noted, not being obscured by that of the drug. In the greater number of cases the douche was accompanied by the hypodermatic injection of ergotin. In hemorrhage from the cervix uteri a hot solution of a mercurial, very dilute, was injected, with good results. The writer's results were uniformly good, and without accident.

THE TREATMENT OF POST-PARTUM HEMORRHAGE.

DR. TEMPLE, of Toronto, in a case of post-partum hemorrhage, recently treated, injected hot water into the uterus several times without avail. He emptied the uterus of its clots, and exercised manual compression, but unsuccessfully. In the emergency he injected a tumblerful of undiluted brandy within the uterus; prompt and lasting contraction ensued, and cessation of the hemorrhage.—*Canada Lancet*, January 1, 1888.

ANTE-PARTUM PERITONITIS.

MR. GOW, of St. Bartholomew's Hospital, reports, in the *Edinburgh Medical Journal* for January, 1888, the following interesting case:

The patient was a stout, well-made woman, aged thirty-two, who had had eight children previously, the labors in all these cases being natural. She was seen for the first time on the morning of May 9th. She complained of frequent, sharp abdominal pains, not resembling labor pains in character. Her lips and cheeks were livid, and beads of sweat stood on her brow. Her tongue was slightly moist. There was frequent retching. The hands and feet were cold and clammy, and the pulse was barely perceptible at the wrist and could not be counted. The respirations were rapid, being about 40 to the minute. She was quite conscious, and complained of great pain on turning on to her left side. The abdomen was distended, and the fœtus could be plainly felt, apparently within the uterine cavity.

Per vaginam: the cervix was soft, the os being dilated to about the size of a five-shilling piece. The membranes were unruptured. The head was felt to be presenting. As she complained of constant desire to pass water with inability to do so, a catheter was passed, and about one and a half ounces of urine drawn off.

The history given by the patient was, that one month previously her right leg slipped through a hole in the floor, nearly as far as the groin, owing to some rotten boards giving way. Since then, she says, she has never felt well. She had reached nearly the full period of gestation, and was expecting to be confined every day. She remained in fairly good health until the evening of May 8th. At 6 P. M. of that evening she was seized with sudden abdominal pain, and vomited. She was visited by one of the students, who found her complaining of abdominal pain and distention. She was belching up wind, but otherwise did not seem seriously ill. The pulse-rate was said to be then about 90. She was ordered some mild carminative.

Seeing the desperate state of the patient, Mr. Gow decided to perform version, and remove the child as rapidly as possible. Before commencing the operation, the patient's abdomen was rapidly auscultated, but the fœtal heart could not be found. The patient was placed on her back, and version commenced. To subdue the resistance of her abdominal muscles, a few whiffs of chloroform were administered tentatively; but as it made the patient more cyanotic than before, it was discontinued. Just as the knee of the child had been reached, the patient ceased to breathe. In the hope of saving the child, an incision was made into the abdomen.

On opening the peritoneal cavity a large quantity of semi-opaque peritoneal

fluid, containing flakes of lymph, escaped. There was no blood in the peritoneal cavity. The uterus was seen covered with flaky lymph. An incision was made into it, and the child extracted about five minutes after the death of the mother. The child's heart was not beating, and all attempts at artificial respiration failed. There was only slight hemorrhage on cutting into the uterus. There was no blood in the uterine cavity. No evidence of rupture of the uterus or other organ was discovered. The inflammation of the peritoneum was most marked over the uterus and in its neighborhood.

No cause for the peritonitis could be found, but unfortunately no complete examination of the body was obtainable. Death took place fourteen hours after the onset of the symptoms.

Mr. Gow adds a case reported by Sir James Simpson, and two reported by Matthews Duncan, in which, as in his own case, the etiology of the condition was very obscure.

A TUMOR OF THE UMBILICAL CORD.

BUDIN, in *Le Progrès Médical* of December 31, 1887, reports the case of a rare tumor of the umbilical cord occurring in a multipara whose three previous pregnancies had been normal. During the pregnancy in question the patient had observed, from the fourth month, a sensation of great weight in the lower abdomen, with sharp pain in the left side which extended into the limb, making walking impossible. In the latter months of pregnancy she experienced a severe mental shock. The labor was normal, and a healthy, well-formed female child was born, and lived.

The tumor was about eight inches from the umbilicus, and as large as a man's fist. Its border was attached to the cord; it was of a light greenish-yellow hue, and contained three cystic cavities. Dissection revealed dermoid and mucoid elements. Budin considered it a complex tumor of embryonal type. [Such a tumor would evidently belong to the class designated by Ziegler teratome, congenital tumors frequently dermoid, and often attached to the spinal column of the fœtus.—ED.]

THE TREATMENT OF PUERPERAL SEPSIS BY SALICYLATE OF SODIUM AND ALCOHOLICS.

VON JAKSCH, now of Graz, in the *Wiener medicinische Presse*, No. 1, 1888, in a comprehensive article upon the antipyretics most in use, writes in most positive terms of the value of salicylate of sodium in conjunction with alcoholics, in puerperal sepsis. His opinions are based upon fifty cases, treated in the wards of Nothnagel, in Vienna, under von Jakseh's personal supervision.

He began the administration of the drug by giving seven and a half grains of salicylate of sodium hourly until the temperature fell to normal, a result generally obtained in fifteen to twenty hours. Symptoms of intoxication were rarely observed; when they appeared in force the dose was reduced one-half. He considers symptoms of intoxication no reason for abandoning the treatment, and after four or five hours he was generally able to resume the original doses.

In conjunction with this treatment he employs alcoholics in full doses,

cognac, sherry, and any form of good wine being freely given, with the best possible diet. In the event of heart failure becoming imminent, hypodermatic injections of camphorated oil and other cardiac stimulants were given. If five or six doses of seven and a half grains of sodium salicylate produce no effect, von Jakseh does not hesitate to give fifteen grains hourly, and considers the administration of four and a half to five drachms of sodium salicylate in twenty-four hours fully indicated in severe conditions. The only ill effect he has seen follow this treatment has been mild delirium.

Von Jakseh is not prepared to assign to sodium salicylate a specific action upon puerperal sepsis, but he desires to call the attention of those who treat large numbers of puerperal women to its use, and he advises in cases where a moderate rise of temperature occurs, post partum, that the drug be given promptly, sixty to seventy-five grains daily, and if severer symptoms follow, the full doses should be given. He would administer the remedy, from forty-five to sixty grains daily, to pregnant women, just before labor, when the surroundings of the patients are very unfavorable and non-hygienic.

OPHTHALMIA NEONATORUM.

In the *Zeitschrift für Geburtshilfe und Gynäkologie*, Band 14, Heft 1, NEBEL describes the studies of KALTENBACH, in the clinic at Giessen, upon this subject. For the first eighteen months after taking charge of the clinic Kaltenbach employed Credé's prophylactic treatment of nitrate of silver in 234 cases, with 2 cases of purulent ophthalmia, and 2 of mild catarrhal conjunctivitis; resulting morbidity 0.85 per cent. In 2 of these cases the mothers suffered from endometritis; in 2 cases from parametritis. Nitrate of silver was then abandoned, and for six months careful disinfection of the children's eyes with corrosive sublimate solution, 1 to 5000 or 3000, was employed. In 85 cases blennorrhœa resulted in 1, and simple benignant purulent catarrh in 2. The present method of treatment was then instituted, which is as follows: Each patient is given a full bath on admission, at which the external genitals are thoroughly cleansed with soap. Before and after each vaginal examination a vaginal injection of corrosive sublimate, 1 to 3000, is made. The slightest suspicion of gonorrhœa necessitates a thorough abortive treatment. When labor begins, the external genitals are again cleansed, and after examination vaginal douches are given, until six or eight quarts of sublimate solution, 1 to 3000, are used. As soon as the face passes the perineum the eyes are cleansed with cotton dipped in distilled water.

Nurses are carefully taught the danger of contagion by the maternal discharges, and instructed to avoid it. The most strenuous precautions to obtain cleanliness among the nurses are observed. Children are not allowed to sleep with the mother; their eyes are cleansed daily with distilled water only. The results of this treatment in 330 cases, which were treated in the last two years, were 2 cases of mild conjunctivitis, and not a single case of virulent ophthalmia. In one of these cases the mother had endometritis; in the other she came late into the hospital, after labor had begun, and thorough disinfection was impossible. Nebel regards Credé's method as objectionable, because of the irritant effects of the nitrate of silver.

AUVARD, in the *Gazette Hebdomadaire*, No. 42, 1887, reviews the various

methods of treatment of this affection employed by the French, and concludes that the following is the best routine: In mild cases of ophthalmia the eyes should be douched every two or three hours with a solution of boric acid, 4 to 100; it is rarely necessary to resort to caustics.

The preventive treatment of severe ophthalmia consists in removing the child from all sources of danger, and in thoroughly disinfecting the mother. One drop of nitrate of silver solution, 1 to 50, is dropped into the eye; this may be repeated if a new infection arises. The curative treatment of severe ophthalmia consists in two applications daily with silver solution, 1 to 20, or 1 to 50, as the case demands, with douches of boric acid, 4 to 100, every two or three hours (after each nursing). Compresses wet in hot boric acid solution (at 120° F.) should be used between the douches and cauterizations.

FOETAL INFECTION WITH ANTHRAX.

AHLFELD and MARCHAND, in the *Centralblatt für Bacteriologie und Parasitenkunde*, No. 14, 1887, report the case of a woman who presented no symptoms of disease except a moderate pallor and tympanitic distention of the abdomen. She gave birth, after a normal labor, to her second child; eight hours after labor the patient died in collapse, for which no cause was evident. Post-mortem examination revealed anthrax as the cause of death. The child perished four days after birth, also from anthrax. The mother had contracted the disease in sorting horseshair, and the child was infected through the placental circulation, probably through rupture of the villi of the chorion during the separation of the placenta.

The case furnishes an interesting example of the direct transmission of infection from mother to child, and was clearly demonstrable from the nature of the infective medium.

RUPTURE OF THE UTERUS; LAPAROTOMY; RECOVERY.

In the *Deutsche medicinische Wochenschrift*, No. 2, 1888, KOETTNITZ describes the case of a rachitic woman who had been pregnant three times, an abortion and two stillbirths resulting. In the fourth pregnancy she came into the clinic at Halle, when five months advanced, when examination showed a rachitic pelvis. It was proposed to induce labor at the seventh month. Before this could be done, severe labor pains came on; the os uteri failed to dilate, but was closed by cicatricial tissue, caused by difficult labors previously.

When summoned, the physician found the patient in collapse, with well-marked symptoms of rupture of the uterus; examination, externally and per vaginam, confirmed the diagnosis. Laparotomy was at once performed. After the extraction of the child, the uterus contracted so firmly and rapidly that the uterine wound was reopened with great difficulty for the removal of the placenta and membranes.

The cervix uteri was so occluded by cicatrices that force was used in opening with the finger a passage through the cervix for the exit of the lochia. A circular rupture of the uterus was found. The abdominal wound was closed as rapidly as possible with silk; a drainage tube was inserted. In addition to antiseptic dressings an Esmarch's bandage was applied over

the abdomen, to secure equable and firm pressure upon its contents. The patient made a good recovery in five weeks' time. A rise of temperature and profuse discharge were treated by substituting for the tube drainage by iodoform gauze. The pelvis contained considerable exudate, which was in process of absorption when the patient was discharged.

The occurrence of rupture of the uterus at seven months, induced by occlusion of the cervix by cicatricial tissue from former difficult labors, with the presence of metritic and perimetritic exudate, are interesting features in the case dependent primarily on contracted rachitic pelvis.

CÆSAREAN SECTION.

HOFMEIER, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band 14, Heft 1, reports three successful cases of Cæsarean section, two performed by the late Professor Schröder, and one performed by himself. The first of Schröder's cases was contracted pelvis, with a diagonal conjugate of about 3 inches (7.5 centimetres). The operation was performed after Säger's method; the uterine muscle was not resected, but sutured with silk; the peritoneum with catgut. When the elastic ligature was loosened bleeding occurred from one extremity of the incision in the uterus, which was checked by additional deep stitches. The uterus contracted poorly after the operation, and it was necessary to apply a firm compress, after employing uterine massage. The patient's recovery was complete twenty-one days after the operation. When discharged, her uterus was somewhat enlarged, and adherent to the abdominal wall.

Schröder's second case was that of a woman, aged forty-five, in the right side of whose cervix uteri a myoma was present. Schröder had produced abortion in the previous pregnancy, and had been obliged to curette the uterus to free it from the placenta. In the early weeks of the next pregnancy an attempt was made by her physician to produce abortion, but unsuccessfully.

She came again to Schröder's clinic when seven months pregnant, and Cæsarean section was determined upon. Two hours after labor had fairly begun, Porro's operation was performed, the uterine arteries being isolated and tied. The myoma was found to be unusually hard and very adherent with the peritoneum; the uterine stump was closed with catgut and covered with peritoneum. The operation lasted one and three-quarters hours. The dressing was iodoform gauze. The abdominal incision healed by first intention. The patient was discharged twenty-six days after operation. The cervix was well contracted, drawn somewhat to the left; on its right a firm, ill-defined tumor.

Hofmeier's case was a rachitic pelvis, with a diagonal conjugate of 9.5 centimetres (3.7 inches), and a previous history of four births fatal to the fœtus. Operation was performed one and a half hours after labor was well begun. Säger's method was followed. Uterine atony, with hemorrhage, required compression, massage, and ergotin hypodermatically. Anæmia and transient abdominal meteorism were the features of recovery. When discharged, the uterus was adherent to the abdominal wall; examination two months later found it freely movable and apparently normal.

The children in these cases were asphyxiated when delivered, but were

resuscitated, Schultze's method of swinging the child by the shoulders proving most efficient.

Schröder had previously performed Porro's operation for myoma complicating pregnancy, with success.

Hofmeier considers the essentials of success in these operations to be:

1. Scrupulous antiseptics.
2. Early operation.
3. Sufficient uterine sutures.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
OF NEW YORK.

ANATOMY OF HEALTHY AND DISEASED OVARIES.

NAGEL (*Archiv für Gynäkologie*, Bd. 31, Hft. 3) endeavors to reconcile the clinical with the anatomical diagnosis of ovarian disease, by presenting the results of his examinations of slightly affected organs which were removed by laparotomy.

Referring to the common expression, "cystic degeneration," he says positively that, from his investigations, he is led to infer that there is no diseased condition which can be called slight cystic degeneration. In this he agrees with the opinion expressed by Virchow, in 1848, that it is unscientific to say that the number of normal ovisacs is increased to the number of several thousands as a result of disease. It is undoubtedly difficult to define the exact boundary between the normal and pathological. Comparing Waldeyer's classical description of the normal Graafian vesicle with the appearances seen in enlarged ovisacs, it must be evident that the latter condition is purely physiological and cannot be regarded as true cyst-formation. Such enlarged vesicles are very common in fetal ovaries. A mere increase in the number of ovisacs is no indication of disease of the stroma; on the contrary, such disease, if it reaches a certain degree of severity, results in actual destruction of the vesicles.

With regard to the condition known as *hydrops folliculi*, Nagel believes that size alone is no criterion of the presence or absence of dropsy. He agrees with Sinéty and Melassez, that hydrops really results in destruction of the vesicle, and never leads to the formation of a cyst; a dropsical Graafian body never attains a size larger than that which it might have reached if it had not been diseased.

The author thinks that cysts of the corpus luteum are more frequent than is commonly supposed; indeed, a corpus luteum is more likely to develop into a true cyst than is an unruptured ovisac. It is erroneous, he adds, to say that the corpus luteum is the result of contraction; it is essentially the

product of a hypertrophic process, which leads to the new formation of ovarian tissue.

The stromal changes observed in the condition known as "interstitial oöphoritis" are, says Nagel, "the substratum of chronic oöphoritis." There is no actual inflammatory process; he has never been able to find any evidences of round-cell infiltration in the specimens examined by him. The hypertrophy is confined mostly to the stroma in the immediate neighborhood of the hilum, which is transformed into firm connective tissue. Smooth muscle-fibres he has never seen. The explanation of cyst-formation in connection with chronic oöphoritis is this: as the cirrhotic ovary contracts and furrows are formed on its surface, remains of the superficial "germ-epithelium" are included in these furrows, and by the isolation of these cell-offshoots cysts may be formed.

The author's deductions are as follows:

1. In every instance the interstitial tissue of the ovary is first affected by disease.
2. The ovisacs retain their normal appearance for a long time, and contain healthy ova.
3. After the stromal changes have attained a certain grade, the vesicles undergo atrophy.

Peri-oöphoritis, the writer adds, seems to be the most frequent cause of ovarian disease, the periphery being first affected and subsequently the deeper parts. In only a single instance did he attribute the pathological changes to a preceding acute interstitial oöphoritis; the result of the acute process is a general hypertrophy and induration of the gland, so that it may reach the size of a goose-egg.

In concluding he seeks to show that in the case of the patients whose ovaries he examined after their removal, the diagnosis of disease, based upon the clinical symptoms and the result of the vaginal examinations, was fully confirmed by microscopical examinations of the removed organs.

[The subject of this paper possesses such practical interest for laparotomists that we have ventured to make a somewhat lengthy abstract. We must confess that after a careful study of the article we are disappointed at the meagre addition to our existing knowledge. What surgeons desire of pathologists is not so much minute descriptions of the various pathological appearances to be seen in every section of a diseased ovary, as a satisfactory test by which to determine what degree of morbid change in a given organ is sufficient to impair its functions, and hence to justify removal, on the ground of existing disease. Every tyro with the microscope knows that it is rare to meet with an ovary that is perfectly normal anatomically. Although the writer has made a careful and painstaking study of his specimens, and has presented his results in a clear and interesting manner, we fail to see that he has solved the problem which he stated at the outset.—ED.]

PARALYSIS OF THE UTERUS FROM CURETTING.

GEYL (*Ibid.*), referring to observations made by Doléris, states that while removing two tumors from the bladder he noticed that a solution of boracic acid, which he had injected into the organ, did not return. He feared rupture

of the bladder, but, on introducing his finger, could find no lesion; the organ seemed to be in a state of complete relaxation. As soon as the anæsthetic was discontinued, the fluid was forced out in a stream. The phenomenon could only be explained by supposing a paralysis of the vesical muscle, associated with a lowering of the normal abdominal pressure. This is similar to the condition sometimes observed in the uterus after the use of the curette. The organ becomes so flabby and relaxed that when fluid is injected into its cavity, neither the uterine muscle nor the abdominal pressure is sufficient to force it out.

CASE OF PSEUDOMYXOMA OF THE PERITONEUM.

GEYL (*Ibid.*) also reports a case of laparotomy in a patient seventy-six years of age, who had suffered from dyspnoea, ascites, and œdema of the feet and ankles, without pain or fever. Fluctuation could be obtained on palpating the abdomen, but an attempt to remove a specimen of fluid with a hypodermatic needle was unsuccessful. The history and symptoms pointed to ovarian cyst. On opening the abdomen a quantity of ascitic fluid escaped. A colloid cyst, springing from the left side, was removed. On examination, colloid masses were felt on the under surface of the liver, over the diaphragm, stomach, omentum, and intestines, beside covering the pelvic organs. It was impossible to remove the cyst entirely. The patient recovered from the operation, but subsequently wasted away, dying of exhaustion. An autopsy could not be obtained.

LACERATION OF THE CERVIX AND ITS RELATION TO UTERINE DISEASE.

NOEGGERATH (*Ibid.*) read a paper on this subject, in September, 1887, before the Society of German Naturalists and Physicians. Although the operation for the repair of cervical laceration is performed far less frequently in Germany than in America, the reader still thought that even in the former country it is sometimes done unnecessarily. He opposed the operation unhesitatingly. Out of 100 cases of uterine disease which he had observed, in 50 the cervix had never been lacerated. There was no difference as regarded the frequency of displacements in the two cases. Twice as many women without lacerated cervixes were sterile after the birth of their first child; and out of 20 cases of abortion, 12 occurred in women without lacerations. Both erosion and eversion were noted more frequently in nulliparous women. With regard to ectropion, Noeggerath affirmed that it was due simply to a swelling of the lips and might occur in an intact cervix. Eversion in cases of laceration was produced by introducing Sims's speculum, which put the anterior and posterior vaginal walls on the stretch, and thus caused rolling out of the lips. The author summarized as follows:

1. Women conceive more readily when the cervix is lacerated than when it is intact, and abort less frequently.
2. Displacements of the uterus are not produced by laceration of the cervix.
3. Hypertrophy of the uterus is an accompaniment, not a result, of laceration.
4. Laceration of the cervix *per se* has no influence in producing uterine disease.

5. Erosions and ulcerations occur with equal frequency in the torn and in the intact cervix.

6. Ectropion is not the immediate result of laceration.

7. Restoration of the original shape of the *portio vaginalis* can have no influence upon the existing condition of the uterus.

In closing the discussion, the author denied that he had ever observed under the microscope any pathological change in the tissue removed from a lacerated cervix.

[The reader will share in the feeling of surprise expressed by Sanger on listening to this paper by an American gynecologist. No further comment is needed than the mention of the fact that his German auditors were almost unanimous in their disapproval of his extreme views and in their commendation of Emmet's operation.—ED.]

THE OPERATIVE TREATMENT OF RETROFLEXION OF THE UTERUS.

SANGER (First part of paper in *Centralblatt fur Gynekologie*, January 14, 1888) makes a valuable contribution on this subject, in which he presents a brief, but comprehensive, historical review. He estimates that in at least twenty per cent. of cases of retro-displacement it is impossible to keep the uterus in its normal position after replacing it. Why, he asks, can we not, in those cases in which the organ is only retained in position when a pessary is introduced perform some operation which will render the pessary unnecessary? The essentials demanded of such an operation must be safety and the restoration of a condition which corresponds as closely as possible to the natural one. This desideratum has not yet been attained.

He divides the various operative procedures into the indirect and the direct. Among the former he includes: *a.* Repair of the lacerated perineum, with correction of the prolapse of the vagina and uterus; *b.* Repair of the lacerated cervix alone; *c.* Amputation of the *portio vaginalis*; *d.* Removal by laparotomy of any neoplasm which may directly cause the displacement; *e.* Removal of the uterine appendages.

As an illustration of the latter method, he cites a case in which he had removed the ovaries in order to relieve various hystero-neuroses, associated with menorrhagia. The uterus was retroflexed. Some months after the operation the hemorrhage recurred. On examination, the uterus was found to be still retroflexed and no smaller than before. The left stump appeared to be thickened and tender on pressure. At the earnest request of the patient laparotomy was performed a second time, and the affected stump was freed from the adhesions which it had contracted. The adherent uterus was detached, anteverted, and retained in position by means of a Hodge pessary. Although the organ soon returned to its former malposition, it decreased in size, the hemorrhage ceased, and the patient was entirely relieved. It was evident from this that persistent hemorrhage from a retro-displaced uterus after castration was to be ascribed directly to the retroflexion.

Among the indirect operative measures may be classed Schultze's method of separating periuterine adhesions by bimanual manipulation (see Report on Gynecology in the January number of the Journal).

Of the direct operations, he mentions: *a.* Von Rabenau's method of resect-

ing a portion of the vaginal wall, in order that traction on the cervix may result from the resulting cicatricial contraction; *b.* Alexander's operation, which in itself is not enough, as it does not attack the cause of the displacement, although, if combined with shortening of the antagonizing utero-sacral ligaments, it may be made more efficient; *c.* The treatment of retroflexion by laparotomy and ventral fixation of the organ.

The latter operation was first attempted by Kœberlé in 1877. After removing the ovaries, he sewed the stumps in the abdominal wound. P. Müller, a year later, attached the fundus to the abdominal wall. Schultze, writing on this subject in 1881, said that the performance of laparotomy for the express purpose of curing retroflexion was only justifiable after attempts to break up the adhesions by bimanual pressure had proved unsuccessful, and that even then it was too dangerous a procedure to be advised. Olshausen renewed the discussion of the subject in 1885, and reported two cases, in one of which he attached the stumps (after oöphorectomy) to the lateral walls of the pelvis, while in the other the sutures were introduced through the cornua of the uterus, at the base of the round ligaments, and were then carried as deeply as possible through the muscles of the abdominal wall. In this way a greater range of motion was obtained for the uterus than was the case when the fundus was attached. Tait reported two cases in 1880, and Hennig another in 1881, beside others by Bardeleben and Czerny, and two by Sänger. Soon after Olshausen's paper appeared, Dr. Howard A. Kelly, of Philadelphia, performed an operation, which he subsequently reported under the name "hysterorrhaphy," a word to which Sänger objects, since from its etymology it would imply a plastic operation upon the uterus itself; "gastro-hysterosynaphia," or "ventro-fixatio uteri," are suggested as being more appropriate terms.

The following variations in *technique* have been practised: 1. Removal of the appendages, and suture of both stumps in the abdominal wound. 2. Ovariectomy, and suture of a single stump in the wound. 3. Removal of the appendages and attachment of the fundus uteri to the abdominal wall. 4. Attachment of one stump to the abdominal wall. 5. Attachment of both stumps as in 4. 6. Suture of the cornua uteri to the abdominal wall, without removal of the appendages.

The author reports seven operations performed after different methods in all of which the uterus was permanently fixed in the normal position. It is frequently stated, he concludes, that after the removal of the appendages the retro-displaced uterus diminishes in size, and gives rise to no further symptoms, but this retrograde process is often indefinitely delayed, while pain and hemorrhage persist.

[This concluding statement is one of great practical importance, which is constantly being verified in the after-history of cases of laparotomy. We venture to go a step beyond Sänger, and to assert that in our experience no operation upon the uterus, performed for the relief of pain, hemorrhage, or hypertrophy of the organ, is likely to be successful so long as the uterus remains fixed in a position of retroflexion. It is evident that a general application of this principle would limit to a considerable extent operative interference in pelvic disorders.

With regard to the operative treatment of retro-displacement, we must not

forget that twenty years ago Sims suggested the procedure of attaching the fundus uteri to the abdominal wall, by passing a wire suture through the wall from without, the abdomen not being opened. This idea was never carried out. To the methods of securing the uterus after replacement should be added that practised by Polk, of New York, who, after performing laparotomy and separating the adherent organ, retains it in its normal position by shortening the round ligaments in the usual manner.—ED.]

THE OPERATIVE TREATMENT OF RETROFLEXION WITH FIXATION.

KLOTZ (*Ibid.*) reported before the Dresden Gynecological Society in October, 1887, seventeen successful cases of retroflexion, which he had treated by opening the abdominal cavity, separating the retro-uterine adhesions (and also those around the tubes and ovaries), and securing the uterus in a position of anteversion by attaching one tube, or the stump left after removing the appendages, to the abdominal wound. He then passed a glass drainage-tube, about one-half inch in diameter, to the bottom of Douglas's pouch, and left it in situ for three or four weeks. The advantages claimed for the tube were:

1. The cavity could be washed out daily, so that blood or exudation could not collect in it.

2. The uterus was supported in its new position during the entire process of healing, so that no strain was thrown upon the stump.

3. A layer of organized lymph formed around the drainage tube, which layer subsequently became a firm cord of connective tissue, that "thickened the posterior wall of the uterus, and also formed a second point of fixation to the abdominal wall."

No bad effects followed the introduction of the tube, which, after the fourth day, was daily turned about on its long axis, in order that the lateral openings might not become plugged; shorter tubes were later substituted for the original one. Sepsis was absent in every instance, in spite of the prolonged use of the tube. In three cases only was it necessary subsequently to correct the position of the uterus with a pessary, by reason of the formation of fresh retro-uterine adhesions, which tended to draw the organ backward. The uterus remained in a position of anteversion and was freely movable; the operation was free from pain, and there was no disturbance of the functions of the bladder. Hernia had never followed the operation, in spite of the use of the tube, which was the more remarkable as Klotz had seen a hernial protrusion caused by attaching the fundus uteri to the abdominal wall.

[The writer appears to regard his method as a "new" one. If we mistake not, Polk described it in a paper entitled, "Laparotomy for Adherent Retroflexed or Retroverted Uterus," read before the New York Obstetrical Society, April 19, 1887, at which time he reported five cases in which he had employed the drainage tube in the manner described. In the discussion that followed, H. Marion Sims reported a case in which he had performed the same operation a year or two before.

We confess that the prolonged use of the tube seems to us to be a serious objection. Nearly all laparotomists now regard it in the light of a necessary

evil, and consider that its use adds greatly to the risks of the operation. We cannot see what necessity there could be for washing out the abdominal cavity three or four weeks after the operation, unless there was actual suppuration.

In describing the formation of adhesions around the tube, the advocate of this method has made no mention of intestinal adhesions resulting from its use. We have noted these on several occasions, and have found that they constituted a source of permanent distress to the patient. He is certainly exceedingly fortunate in never having had a case of ventral hernia, since the use of large-sized drainage-tubes is universally regarded as the most common cause of this complication. The absence of vesical irritation after forcible reposition and fixation of the uterus is remarkable; in two cases in which we attached the uterus to the abdominal wall, this symptom has been extremely annoying, persisting in one instance after the lapse of more than a year.—ED.]

EXTRA-PERITONEAL EXPLORATIVE INCISION.

BARDENHEUER (*Deutsche medicinische Wochenschrift*, No. 13, 1887) claims that this method of incision is absolutely safe, while it affords a greater certainty of a correct diagnosis because the majority of abdominal tumors are either extra-peritoneal, or are attached to the peritoneum. Moreover, it may be possible to remove, partially or completely, the tumor extra-peritoneally.

By the intra-peritoneal method it sometimes happens that the origin and character of a tumor cannot be determined until the close of the operation.

The technique is described briefly. It consists simply in exposing the peritoneum by a free incision and investigating the position of the tumor; if necessary, the membrane may be punctured, or even incised, in order to allow the introduction of the finger. The peritoneum may be separated over a considerable area without danger. The writer describes three incisions—the “Renalschnitt,” or lumbar, the “Symphysisschnitt,” or lower abdominal, and the “Thorakalschnitt,” or upper abdominal; any two of these may be united with advantage. There is no danger of subsequent hernia. The lumbar incision is the ordinary one adopted in kidney section; to it may be added the “Costalschnitt,” an incision extending backward to the vertebral column, and the “Iliacschnitt,” which runs posteriorly along the crest of the ilium. The two latter may also be prolonged anteriorly if the tumor is unusually large. The suprapubic incision is made transversely, just above the symphysis, and may be extended outward along Poupart’s ligament. The upper abdominal incision follows the lower border of the ribs. Through these three openings the entire abdominal cavity may be thoroughly explored. The author expects to publish a more extended account of his method in the form of a monograph.

[Although this subject is of more interest to the general surgeon, we have ventured to introduce it here in order to express our disapproval of some of the writer’s statements. It is certainly contrary to our observation that the peritoneum can be extensively stripped from the superjacent fascia without danger, and that such abdominal incisions as he describes are not followed by hernial protrusions. It is not stated in what proportion of cases it becomes necessary, in order to establish the diagnosis, to incise the peritoneum, thus converting the operation into an intra-peritoneal exploration.—ED.]

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
Membranous Enteritis: with cases and post-mortem records. By WILLIAM A. EDWARDS, M.D.	329
A Clinical Study of Carcinoma of the Breast, and its Treatment. By SAMUEL W. GROSS, M.D., LL.D.	341
A Case of Alarming Hemorrhage following Excision of the Tonsils. By S. E. FULLER, M.D.	357
Hereditary Anglo-neurotic Edema. By WILLIAM OSLER, M.D.	362
Chronic Pyelitis, treated by Kolpo-uretero-cystotomy. By NATHAN BOZEMAN, M.D.	368
Pott's Fracture. A comparative study. By J. BLAND SUTTON, F.R.C.S.	376

REVIEWS.

The Operative Surgery of Malignant Disease. By Henry L. Butlin, F.R.C.S.	379
The Practice of Medicine and Surgery, applied to the Diseases and Accidents incident to Women. By W. H. Byford, A.M., M.D.	382
The Throat and its Diseases, including Associated Affections of the Nose and Ear. By Lennox Browne, F.R.C.S.E.	386
Operative Surgery on the Cadaver. By J. J. Carmany, M.D.	388
Lessons in Gynecology. By William Goodell, A.M., M.D.	389
Osnovuz Pekkutometri i Palpatometri kak metodov Klinicheskago izsledovaniga. sochinenie Vladimir-mariana Vikentievicha Philipovicha.	390
The Refraction of the Eye. A Manual for Students. By G. Hartridge, F.R.C.S.	392

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
The Abortive Treatment of Syphilis	393	Chloral in Diphtheria	396
Poisoning by Antipyrin	394	Treatment of Psoriasis by Iodide of Potassium	397
Antipyrin in Migraine	394	Uses of Cannabis Indica	397
Italian Treatment of Pulmonary Tuberculosis	394	Dysmenorrhœa	397
Amylene-hydrate as a Hypnotic	395	The Subcutaneous Injection of Methylal in Delirium Tremens.	397
Tobacco Amblyopia	395	Iodoform Mixture	398
Combinations of Phenol with Mercury, and their Therapeutical Uses	395	Methylal	398
Lactic Acid in the Diarrhœas of Children.	395		

MEDICINE.

An Epidemic of Measles	398	The Inheritance and Curability of Tuberculosis	402
A Case of Hereditary Chorea in the Adult	398	Sarcina of the Lung	404
Spinal Progressive Muscular Atrophy; and Amyotrophic Lateral Sclerosis	399	Failure of the Heart in Valvular Disease	404

	PAGE		PAGE
Albuminuria in Diabetes Mellitus	407	Saccharin in Diabetes	409
Aortic Insufficiency and Pulsation of the Spleen	407	Acetonuria in Children	409
Some Newer Methods for the Recognition of Free Hydrochloric Acid in the Gastric Secretion	408	Microörganisms of the Male Urethra and of Normal Urine	409
		Microörganisms in the Urine of Acute Bright's Disease	409

SURGERY.

Resections of the Pharynx and Oesophagus	410	Affections of the External Iliac Glands Consecutive to Inguinal Buboes	417
Healing of Wounds of the Stomach in relation to Various Sutures	411	The Treatment of Carotid Hemorrhage	417
Stitches in Laparotomies	412	The Treatment of Varices by Ligation of the Internal Saphenous Vein and Extirpation	418
The Surgical Treatment of Diseases of the Pancreas	412	The Antiseptic Injection of Inflamed Joints	418
Microörganisms in Hepatic Disease	413	Loose Bodies in the Joints	419
The Radical Cure of Hernia	413	Malignant Tumors of the Upper Jaw	420
The Treatment of Vesical Calculus	415		

OTOLOGY.

Chronic Suppurative Otitis Media	420	Treatment of Otorrhœa with Powdered Boric Acid	421
--	-----	--	-----

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

Soft Drainage Tubes in Tracheotomy in Place of Metallic Canulæ	422	Extrinsic Stenosis of the Larynx from Goitre	424
Laryngectomy in Carcinoma	422	Ligature of both Linguals, for Congenital Macroglossia	424
The Danger of Chloroform in Tracheotomy for Extensive Growths in the Larynx	423	The Use of a Stationary Canula in Treating Carcinomatous Stricture of the Oesophagus	425
Stenosis of the Larynx	423		

OBSTETRICS.

Fatal Intoxication from Dilute Solutions of Bichloride of Mercury	427	Two Cases of Labor Complicated by Short Umbilical Cords	430
Creolin, an Innocuous Antiseptic	427	A Case of Kyphotic Pelvis	430
Spontaneous Evolution of Face Presentation into Vertex Presentation	428	Mitral Stenosis and the Third Stage of Labor	430
Two Porro Operations for Atresia Vaginæ; Recovery	429		

GYNECOLOGY.

Ergotin Injections	432	Tubo-ovarian Cysts	436
The Elastic Ligature in Myotomy and in Supra-vaginal Amputation	432	Epispadias in the Female	436
Operative Treatment of Retroflexion	433	Retention of Menses in a Double Uterus causing Rupture	437
The Operative Treatment of Retroflexion with Fixation	434	The Histology and Pathology of Skene's Urethral Glands	437
The Pathological Anatomy of Catarrhal Salpingitis	435	A Rare Anomaly of the Hymen	437
The Development of the Perineum and its Significance in Connection with Certain Malformations	435	Irregular Sub-vaginal Amputation of the Cervix for Epithelioma	438
		Latent and Chronic Gonorrhœa in the Female	438

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

APRIL, 1888.

MEMBRANOUS ENTERITIS:
WITH CASES AND POST-MORTEM RECORDS.¹

BY WILLIAM A. EDWARDS, M.D.,

INSTRUCTOR IN CLINICAL MEDICINE AND PHYSICIAN TO THE MEDICAL DISPENSARY IN THE UNIVERSITY OF
PENNSYLVANIA; PHYSICIAN TO ST. JOSEPH'S HOSPITAL.

THAT a substance, probably mucous in character, is occasionally voided at stool has been recognized for many years—indeed, by the very fathers of medicine; it is recently, however, that these cases have received careful attention and classification in our nosological tables. The disease seems naturally to divide itself under two headings, (1) cases in which the passage of the membrane is accompanied by all the symptoms and concomitants of enteritis or entero-colitis in their acute or chronic form, and (2) cases in which the passage of the membrane is about the only symptom presented.

With the former series of cases we have little to do in the present paper; suffice it to say, that the cases have been noted and observed for many years. To Morgagni, however, is due the credit of first clearly recognizing the fact that such matters in the stools were not portions of the intestinal canal, as then considered, but were occasionally false membranes.

The disease is unfortunate in the fact that it has received many varied and totally different synonyms,² thus giving evidence of the chaotic state of medical opinion in regard to the affection.

Abstract of a paper read before the College of Physicians of Philadelphia.

Pellicular colitis; intestinal cast; pseudo-membranous enteritis; intestinal desquamative catarrh; mucous disease; chronic muco-colitis; enteritis interstitielle; chronic croup of the intestine; chronic
VOL. 95, NO. 4.—APRIL, 1888.

The *etiology* of membranous enteritis has fared but little better than its nomenclature, as the most varied and opposite etiological factors have been adduced in endeavoring to elucidate the problem. Age is a prominent predisposing factor, as most cases occur in adult life, my own cases following the rule; the decade between thirty and forty is that which presents the greatest number of cases; children are not exempt from the disease, as careful perusal of the literature shows a few cases occurring during the earlier years of life. Clemens¹ reports four cases as occurring in children, Chapin² records other cases, as do also J. Lewis Smith³ and Field,⁴ six cases under the age of ten years, Whitehead⁵ adds two children to the list. Laget⁶ has observed an infant convalescing from diphtheria, who passed a mucous cast nearly eight inches long, and Barrier⁷ an example of the disease in a child of five years.

Sex.—Cases of membranous enteritis are generally seen in hysterical women, or hypochondriacal men, a fact well recognized by an early writer, who, as already stated, styled the disease “hypochondriasis pituitosa.” Whitehead tells us that out of one hundred cases only *four* occurred in males; Field notes eighty per cent. of the recorded cases as occurring among females.

When endeavoring to seek the active causative agent of this enteric condition, one is met with such a diversity of opinion as to be almost embarrassed by its richness. We will, however, most usually find the disease occurring apparently as a concomitant or sequela of either disease of the genital or intestinal tract, or of the nervous system. As illustrating the apparent connection between this condition and uterine disorders, we might cite the case reported by Hess,⁸ where the patient had had two miscarriages preceding the attack of membranous enteritis, during which she passed pieces of membrane a foot long. Fish⁹ observed a woman aged forty, in whom a uterine disorder had preceded the expulsion of the membranes, and F. W. Gross¹⁰ a case in which a similar discharge from the vagina accompanied that from the bowel; all the cases seen by this observer were females, and at or about the middle period of life.

The apparent connection between irritation or disorders of the intesti-

pellicular inflammation of the intestinal mucous membrane; fibrinous diarrhoea; diarrhoea febrilis; follicular, duodenal, and colonic dyspepsia; chronic pseudo-membranous gastro-enteritis; tubular looseness, or diarrhoea tubularis; tubular exudation casts of the intestine; vegetations de la muqueuse de l'intestine grêle; mucous or gelatinous diarrhoea; hypochondriasis pituitosa (quoted by Field); mucous casts, and many others.

¹ Ueber dem Darmkrup der Kinder, Jahrb. für Kinderkrankheiten, 1860, Bd. xxxiv. S. 30.

² Arch. Pediatrics, 1884, vol. i. pp. 447-49.

³ Fourth edit., p. 437.

⁴ Fiske Fund Dissertation, No. xxxvii.

⁵ Med. and Surg. Rept., Manchester Hosp., 1870.

⁶ Bull. Soc. Anat., Paris, 1875, p. 843.

⁷ Traité Pratique des Mal., de l'enf., t. ii. p. 36, 2d edit., 1815.

⁸ Med. and Surg. Reporter, 1880, p. 42.

⁹ Ibid., p. 417.

¹⁰ Boston Med. and Surg. Journ., 1881, pp. 27-55.

nal tract and the occurrence of membranous enteritis, is well shown by Willard's¹ case, which occurred in a previously healthy female, aged forty, who some six months before had been poisoned by excessive doses of podophyllin. Most all observers report an antecedent dyspepsia and constipation, alternating with diarrhœa. Grantham, as early as 1849, considered the abuse of mercury as productive of the condition under consideration. Abdominal cancer, pyloric obstruction, proctitis, hemorrhoids, typhoid fever, disease of the prostate gland, and enteralgia, have all been considered as causative agents. Patients suffering from erysipelas have passed membranous casts. Muhlenberg² has observed the same occurrence in tuberculosis of the intestine.

We must exclude cases of the so-called croupous or diphtheritic enteritis, as it is not the province of the present paper to consider all forms of membranes passed, but simply that which is purely a mucous cast; hence but passing reference will be made to Boyd's³ case, in which a deposition of membrane occurred all through the colon, especially in its transverse portion, where the adventitious membrane could with difficulty be separated from the bowel, and was quite flaky, it was evidently a croupous exudate; of a similar nature are the cases recorded by Powell and Bartholow, who considered the membrane passed as the process of a down-travelling diphtheritic focus. The specimens and photo-micrographs of the pseudo-membrane of dysentery recorded in Part II. of the *Medical History of the War of the Rebellion*, are also not accorded a place in the present paper. Lastly, to illustrate its association with disorders and disturbances of the nervous system, we have but to recall the fact that many of the cases present a history of hysterical outbreaks, neuralgia, sciatica, and other nervous troubles; indeed, Da Costa would attribute the true etiology to the nerves presiding over nutrition and secretion, considering the disease as a manifestation of disordered nervous supply, which may be either general or local. Wales considers the ganglionic nerves of the intestine to be primarily at fault.

Symptoms.—In no way, perhaps, can a better understanding be had of the general clinical features of the disease under consideration than by recording the following cases from the writer's practice:

CASE I.—S. H., aged thirty-one years, a woman of good physique; weight 150 lbs. Married nine and a half years ago, first and only child born twenty-seven months before coming under the writer's observation. The labor was normal, and the recovery good. No miscarriage or uterine disorder; health has always been good, is neither nervous nor hysterical; no hereditary contamination. All organs apparently healthy.

¹ Amer. Journ. Med. Sci., Jan. 1878.

² Trans. Path. Soc. Phila., 1876-77, vol. vii. p. 37.

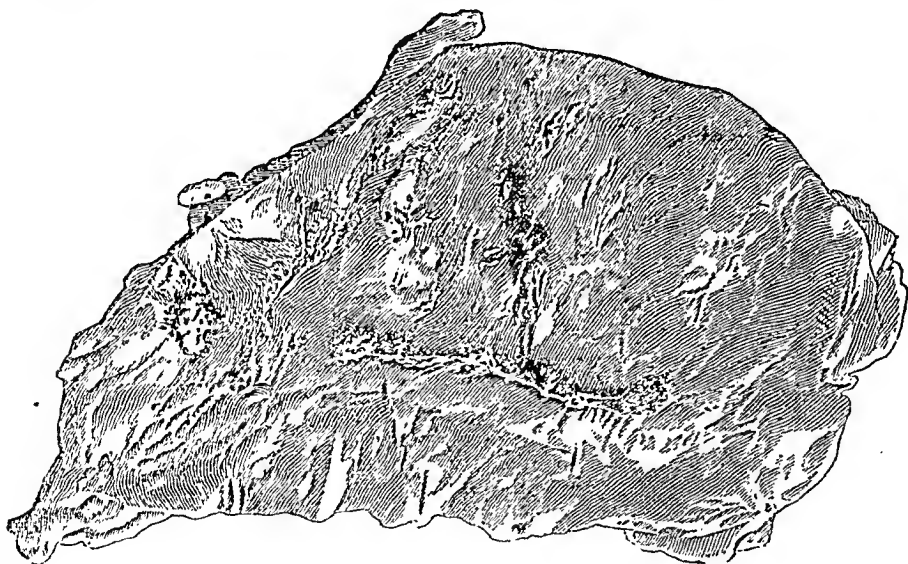
³ Trans. Acad. Med. Ireland, Dublin, 1835. vol. iii. pp. 308-310.

This case has already been referred to in *The Medical News*, August 7, 1886, but a synopsis will now be given.

Three years ago, after a severe attack of dyspepsia, she passed an intestinal cast, which was quite fourteen inches in length.

Since the first appearance of the membrane the passage has been frequent, the total quantity would be quite two gallons. A peculiarity in the case, to which we will refer later, is that the patient complains of no colic, tenesmus, or tumefaction, and suffers no pain during or preceding its passage. Bowels constipated. The paroxysmal passage of the casts, marked at first, has given away to their almost constant presence. Blood never occurs in the discharges. The patient's general health is excellent, her periodical functions are performed with regularity and ease, she feels quite well, and were it not for the mental distress that her condition occasions, would consider herself in perfect health.

CASE II.—E. P., aged seventy-one years, admitted to Dr. Osler's wards in the Philadelphia Hospital, to whose courtesy I am indebted for the privilege of publishing the case. The man was under observation for about six weeks, but was unconscious, and no history could be elicited.



Autopsy twenty-four hours after death.—A very complete and exhaustive examination was made, but, for our purpose, we will consider the intestinal condition alone. The man died of chronic nephritis and purulent basilar meningitis.

Intestines.—Small: show distinct Peyer's glands without ulceration. Large: the ascending portion of the colon presents membranous casts and flakes, closely adherent, yellowish-white in color; small pieces of semi-translucent membrane and some solid roundish cords, which run into a clear colorless jelly, which is almost structureless, is handled only with the greatest difficulty, and when placed in water becomes hardly visible. The appearance is well illustrated by the accompanying illustration, which represents a segment of the colon with the membrane *in situ*.

The point of special interest for us in this case is, of course, the condition of the gut, which, excepting the presence of the membrane, was absolutely normal. No evidence of past or present colitis was to be noted, the small gut and stomach were in a similar healthy condition, and contained no membrane. Judging from the post-mortem evidence the man's digestion and assimilation were as good, if not better, than in most persons at his advanced period of life.

We were unable in any way to connect the existence of the membrane with the patient's condition just preceding death, and can but conclude that it was simply without clinical manifestation, except the passage of membrane in the stools.

The passage of the casts is usually paroxysmal, accompanied by abdominal pain, tenesmus, and nervous disturbances, and is preceded or followed by digestive troubles. Abdominal tenderness almost always exists, and is generally relieved by the passage of the membranes; blood may be present in the discharges;¹ at this time the bladder will usually present some symptoms, more particularly should the disease occur in a female, when manifestations of uterine disorder will be almost invariably present. Patients who are the subjects of membranous enteritis, while they do not lose the normal contour of the body, still present some evidences of malnutrition, they are apt to have eruptions of furuncles and carbuncles, sore mouth or herpes of the genitals, and an irritable nervous system.

Emaciation is rarely a marked symptom, it is indeed worth noting that this almost entire lack of emaciation persists throughout the cases, notwithstanding the amount of matter passed.

The number of paroxysms and the duration of the attacks are very variable, and may be preceded by certain premonitory symptoms, as Da Costa has observed a patient who was able, with absolute certainty, to foretell an attack by a sense of chilliness, blueness of the nails, and tingling or pain at the finger-tips. Patients may suffer but one attack in a year, one a month, or, on the other hand, the paroxysms may be continuous, as in our first case; the duration of these attacks is also very irregular, they have been reported as short as twenty-four hours, and as long as two weeks; the difficulty in precisely limiting the attack will be appreciated when we remember that in the more chronic cases there is an almost constant sequence of symptoms; we must also bear in mind that the patients are usually dyspeptic, and suffer more or less from constipation and abdominal distress, which sometimes amounts to severe pain referred to the umbilical region,² indeed this train of symptoms usually precedes for some time the expulsion of the membranes.

Hess¹ has recorded an interesting case in which the patient appeared to know when the pieces became loose, as she could feel them moving their entire course through the intestinal canal.

Membranes are not found in each stool during a paroxysm, as a rule, but a single accumulation is generally passed accompanied by pain and tenesmus—indeed, some cases only discharge the membrane about once a week; on the other hand, patients may have ten or a dozen membranous stools in twenty-four hours.

Pain, tenderness, and tenesmus are complained of in varying degrees by different patients; the most usual manifestation is abdominal pain, which may be simply a sense of uneasiness or severe agonizing pain² which is generally relieved by the passage of the membrane; tenderness may exist over the entire abdomen or be localized and only developed by firm pressure.

Hemorrhoids, prolapse of the rectum, diarrhœa, jaundice, extreme thirst, coated, anæmic, and fissured tongue, aphthous ulcer of the mouth, and tonsillar phagedena have all been noted in the symptomatology of the disease.

The nervous system presents many and varied manifestations. To some of these neuroses we have already called attention, particularly the hysterical derangements, which are the most frequent of all the functional disturbances; this applies both to males and females affected by membranous enteritis. The following symptoms have been noted: neuralgia, hyperæsthesia, anæsthesia, irregular muscular tremors, paresis, hysterical tetanus, coma, and convulsions. Transient defects in vision, tinnitus aurium, and disordered sense of taste are all among the recorded symptoms.

Whitehead notes chorea and paralysis in children, and Copeland has observed a cataleptic condition follow an hysterical outbreak.

Cerebral symptoms have occasionally appeared, for instance amnesic aphasia has been recorded; mental depression, faulty memory, hypochondriasis, and melancholia may be exhibited for a time, to be followed possibly by increased mental activity.

The association of this disease with uterine disorders has already been noted, as has also the fact that a simultaneous discharge may take place from the bladder and the bowel; cystitis, strangury, and frequent micturition may cause bitter complaint. The urine does not present any alteration that can be associated with the disease under consideration. The temperature is rarely above normal, except possibly during the height of a paroxysm which is accompanied by much pain; it may, however, be affected by an intercurrent disease, as phthisis.

¹ Med. and Surg. Reporter, 1880, p. 42.

² Hutchinson: Ibid.

Macroscopic and microscopic characters of the membrane.—The gross appearances of these casts are well shown by the accompanying illustration. They are for the most part made up of opaque, white solid masses, rounded or flattened, and small flocculent pieces of semi-translucent membrane; the membranes are delicate and are handled only with the greatest difficulty, out of water.

Microscopically the membranes in our cases corresponded somewhat closely to those of Goodhart.¹ Under a two inch objective their surface was seen to be composed of opaque and translucent parts, the former apparent as rounded ridges marking off the latter into regularly arranged hexagonal or polygonal crypts. Under a higher power these crypts are still visible, although much less defined. These appearances are best seen in the small flakes of membrane, less distinctly in the larger masses, and not at all in the finer networks² that are sometimes passed.

These masses appear to be due to the formation of mucous and epithelial matter either upon the surface of or in contact with some follicular mucous membrane. This view is further evidenced by the nomenclature of the Pathological Society of Philadelphia, which, for example, considers the membranes to be the product of an "interstitial desquamative catarrh." On comparison of these membranes which are moulded by the gut with the healthy mucous membrane, certain differences are at once apparent; the mouths of the pseudo-follicles on the surface of the cast are much larger than those in the normal intestine, they approach closer to each other and may run one into the other; the cells present in the membrane have no definite arrangement, and are not placed upon a basement membrane, which is entirely absent in the mucous formations. The cells have undergone a fatty and disintegrating process.

Drs. Wilks and Andrew Clark, reporting upon the microscopic examination of Hutchinson's case to the London Pathological Society, make some interesting observations. Upon laying open the cast and examining its inner surface under forty diameters a gelatinous membrane-formed matrix was observed, traversed by a coarse network of opaque yellow lines, and studded at their points of intersection by similarly colored roundish masses; from the large network proceeded a smaller network and in its meshes were found at close and regular intervals, well-defined oval or round openings, with elevated margins, resembling in appearance the mouths of the follicles in the large bowel. Under 350 diameters the matrix was transparent, structureless, elastic, and everywhere free from fibrillation. Embedded in it were granules, free nuclei, cells, crystals, and particles of undigested food. The opaque yellow lines

¹ James F. Goodhart: Trans. Path. Soc. Lond., 1872, xxii. p. 98, plates iii.

² Case of Griffiths.

were seen to be composed of foreign matters, as bile-pigment, earthy and fatty granules, portions of husks of seeds, gritty tissue of pear, a peculiar form of elastic tissue, stellate vegetable hairs, and a mucedinous fungus.

The cells in the matrix were either spherical or cylindrical, in some portions lying without obvious order, in other parts they were arranged in layers. Generally the membranes have consisted of a single layer of matrix with cells, but in some places several layers of matrix could be noted.

Sir Andrew Clark, in a supplementary note, takes exception to the above report. After citing several propositions to prove his hypothesis, he concludes that he is justified in stating that the casts or membranes are not fibrinous, that they are not the product of inflammation in the sense defined (chronic inflammatory action of the mucous membrane and subsequent exudation), and that the abnormal cell products have arisen in some other way—*i. e.*, metamorphosis—than by free development of an exuded blastema. He also makes this further observation, which is of extreme interest in the present study—the product of diseased action in mucous membranes occurs in three varieties: first, a clear, jelly-like, and imperfectly membranous substance; second, yellowish, semi-opaque, flaky, and usually membranous; third, yellowish-white, dense, opaque, distinctly membranous, tough, and rather adherent to the subjacent surface.

Action with reagents.—H. B. Hare states that pharyngeal mucus, for example, will exhibit chemical reactions similar to those of the membranous discharges, and states further that the discharges consist essentially of mucin, with possibly a trace of albumen and no fibrin, thus expressing our own views on the subject, and agreeing, for the most part, with all other observers.

Strong acids and alkaline solutions of moderate strength will dissolve the casts. Their albuminous nature is shown by acting on these solutions with the usual tests for albumen—heat and nitric or acetic acid. Some observers (Clark) have noted the absence of albumen in the membranes. According to Goodhart, after the solution has been precipitated it cannot be reprecipitated by acetic acid, ferrocyanide of potassium, alcohol, ether, or perchloride of mercury. The casts stain readily but irregularly with carmine.

Pathology.—As we have before stated, it is not within the province of this communication to consider the membranes which are the product of croupous or diphtheritic inflammation, but rather, as Field defines it, a “non-febrile disease of the intestines, characterized by irregularly recurring paroxysms of abdominal pain, which is relieved by the discharge of membranous shreds or tubes composed chiefly of mucin.”

Da Costa is of the opinion that the affection is not originally an

inflammation, but considers the inflammatory element as the result rather than the cause. This observer would attribute the true etiology to the nerves presiding over nutrition, considering the disease as a manifestation of disordered nervous supply, which may be either general or local. Clark held that the membranes were not the product of inflammatory action because they contained no fibrin, a view not tenable at the present day, because we know that fibrin is not an essential component of an exudate. Our own views are in accord with the general consensus of opinion that if inflammation is present at all it is in a very mild form. Siredey, Wales, and Whitehead all practically agree that the pathogenesis of the affection is to be looked for in the nervous system; indeed, as Da Costa most aptly remarks, "The association often with similar discharges from other outlets, points to a deeper, more general cause than enteritis, or morbid condition of the intestinal mucous follicles."

The colon seems to be generally the selective site of the disease; this, however, is not always the case, as the small intestine may be invaded, either in conjunction with the colonic deposit or entirely independent of it. Young adult females, or those in the middle period of life, seem to offer, as far as age and sex are concerned, the most favorable subjects.

Upon referring to the literature of the subject one is at once struck with the extreme paucity of post-mortem records of the disease, and, if we exclude all cases of croupous or diphtheritic deposit, the number becomes small indeed.

Simpson says that Abercrombie saw a case in which the mucous membrane of the colon was covered by an immense number of clear white spots, which were small vesicles, that, when punctured, discharged a small quantity of clear fluid; the patient during life had passed a large quantity of membranous casts or tubes. The small intestine was healthy. The girl died of phthisis.

Wright's case presented the mucous membrane of the colon and lower portion of the small intestine studded with a thickly set papular eruption. Barrier (*ibid.*) noted alteration in the follicular apparatus of the intestine, and Laboulbène¹ states that the membranous discharge first makes its appearance in the summits of the intestinal folds, and there spreads, being slightly adherent to the mucous membrane.

In view of the meagre post-mortem literature of the subject how interesting do the records of our cases become. Here the membranous deposit was confined to the colon entirely, and was extremely adherent to the gut, giving place to a colorless, structureless jelly, which was handled only with the greatest difficulty.

¹ *Recherches sur les affections pseudo-membraneuses*, Paris, 1851, p. 165, quoted by Field.

Diagnosis.—The diagnosis of this condition presents but few, if any, difficulties. If mistakes arise they are, in all probability, due more to the carelessness of the observer than to any obscurity in the manifestations of the usual clinical phenomena of the disease. In the writer's experience the membranes have been considered to be *ascaris lumbricoides*, the resemblance, in some cases, was close indeed, but readily distinguished by the most casual examination; again, the white, shining, detached pieces have been mistaken for segments of the *tænia medio-canellata*, *tænia solium*, and the *bothriocephalus latus*; but, as above stated, the failure correctly to recognize the nature of the case is not on account of its atypical manifestation. It has also been mistaken for fatty discharges, and the lionteric discharges of dysentery. Anal fissure may cause a hypersecretion of mucus.

In cholera a fibrinous or gelatinous matter has been noticed in the small intestine; in occasional cases this has taken the form of a croupous deposit. In puerperal fever, scarlatina, pyæmia, and in tubercular disease a membrane occasionally forms and is cast off. That patients may inadvertently be misled, and thus mislead their medical adviser in relating the history of their complaint, is proven by the experience of Queckett, quoted by Richard Quain, who records the case of a woman, who, at intervals of two or three weeks, had severe abdominal pain, occurring in paroxysms, always relieved by the passage of a mass, sometimes as large or larger than an orange, made up of membranous matters and tubes. The mass represented the undigested portion of mutton chops upon which the patient had been living.

Queckett further states that he has observed nine cases of a similar character. Schubler¹ gives a plate illustrating peculiar branching tubes passed per rectum, which were also probably the arteries and ligaments derived from the meat diet of the patient; similar cases are reported by Elsaesser and Uhl. In other cases the membranes appear to be made up entirely of yellow clastic tissue, which, according to Corrigan,² resembles closely the ligamentum nuchæ of sheep.

In conclusion, portions of the gut itself,³ or of its necrosed mucous membrane, may be voided by stool, but the history of the case, the constitutional condition of the patient, together with the concomitants and the appearance of the matter passed, should quickly elucidate the nature of the disease.

Prognosis.—The prognosis, in relation to cure, is essentially bad; most cases run a prolonged and tedious course, in many extending over the largest part of their adult life; as, for example, the patient of Gross, in whom the disease lasted nineteen years, and Da Costa's case of twenty

Jahrbücher d. deutschen Med. v. Chir., Bd. iii, Heft i., S. 66. Nürnberg, 1813.

Dublin Hospital Gazette, 1854-55, vol. i. p. 38.

Ziemssen's Cyclop., Boehm, vol. xvii. p. 332.

years' duration; on the other hand, the disease, of itself uncomplicated, rarely proves fatal, the recorded causes of death are totally independent of the membranous affection.

Treatment.—We may consider the treatment under two headings: the prophylactic and the active, or that which is appropriate during an interval or remission, and that which we will resort to during an exacerbation.

It is during the remissions or intermissions that we can hope to do more for our patient's permanent good than during an actual attack; it is at this time that diet, regimen, and hygiene are indeed the sheet anchors. A careful supervision must be had of the patient's daily life, all sources of irritation are to be removed, as hemorrhoids or uterine disease. Easily digested or even pre-digested food should be supplied, and care should be taken that undigested particles of food are not irritating the intestinal canal. As constipation usually exists, sometimes to a most stubborn degree, mild saline laxatives are usually most efficacious, or enemata may be resorted to.

Exercise for those who can stand it is of paramount importance, this, if possible, should be out of doors. Dr. Fowler most aptly says, he who stints himself in the drinking of water is dirty inside, and he also tells us that we must drink between seventy and seventy-five ounces of water per day in order to make up for the amount which is excreted by the lungs, skin, and kidneys, amounting to ninety ounces a day; with the solid food we get but about fifteen ounces. Very few persons at home drink as much as that, but should they go to any of the numerous springs, in which our country is so peculiarly rich, drink five pints of water per day, lead a regular outdoor existence, breathe pure air, as many of our springs are situated in most beautiful mountain regions, where the life spent out of doors is most beneficial, the patient will be improved in health, independently of any mineral agent whatever in the water. Unfortunately, however, all of our cases will be unable to avail themselves of a course of treatment at the springs, but as there is no doubt that most of the natural mineral waters preserve their value for a long time, we can put patients through a thorough course at their own homes with the additional advantage of having the case under our own supervision.

During the acuteness of an attack opium will often be found necessary to afford relief, and possibly to check excessive secretion or hemorrhage. Belladonna in the form of the extract, Dover's powder, subnitrate and subcarbonate of bismuth, together with local counter-irritation, all tend to abort the paroxysm, or, at least, to shorten its duration. The following remedies have been suggested: arsenic, copaiba, bromide of potassium, nitromuriatic acid, henbane, vegetable infusions, prolonged counter-irritation, electricity, turpentine, iron, cod-liver oil, oxide or

nitrate of silver by mouth or by high injections, chloride of ammonium, sulphate of zinc, bichloride of mercury, chlorate of potassium, oxide of zinc, blisters, warm water enemata, nux vomica, ergot.

BIBLIOGRAPHY.¹

Allchin, W. H.: Quain, Dict. Med., 9th ed., p. 709. *Barrier.** Traité pratique des mal. de l'enf, 2d ed. 1845, t. ii. p. 36. *Bartholow*: Pract. Med. *Blondeau*: Méthod. de traitement d'une espèce de diarrhée dite pseudo-membraneuse; Journ. de méd. de Par., 1886, xi. 168-177. *Brookhouse*: Lancet, London, 1882, ii. p. 216. *Boardman*: Pseudo-membranous Enteritis; Bost. Med. and Surg. Journ., 1881, p. 514; 1883, p. 516. *Brandt*: A case of diarrhœa tubularis; N. Y. Med. Rec., 1882, vol. xii. pp. 33-36. Bulletin N. Y. Path. Soc., 1881, 2d s., i. p. 67. *Bristowe*: Reynolds's System of Med. *Boyd, F.*: Trans. Acad. Med. Ireland, Dublin, 1885, iii. 308-310 (this was a croupous exudate.—W. A. E.). *Belfield*: Journal Amer. Med. Assoc., 1887, vol. viii. p. 303. *Bennett, J. H.*: Pract. Med., 1866. *Burrows*: Brit. Med. Journ., Feb. 1871, vol. i. p. 143. *Colvis.** L'Union Méd., 1878, 3e. ser., t. xxv. p. 90. *Copeland*: Dict. Pract. Med.; article on Inflammation of the Intestines. Committee on Morbid Growths, Phila. Path. Soc. Trans., 1876-7, vol. viii. p. 37. *Da Costa*: AMER. JOURN. MED. SCI., Oct. 1871, p. 321. *De Courval.** L'Union Méd., 1869, 3e. ser., t. vii. p. 431. *Doe*: Bost. Med. and Surg. Journ., 1885, p. 469. Editorial, Brit. Med. Journ., 1887, p. 390. *Edwards*: Med. News, Phila., Aug. 7, 1886. *Field*: Fiske Fund Prize Dissertation, 1887, No. xxxvii. *Findley*: AMER. JOURN. MED. SCI., Jan. 1875, p. 103. *Fish*: Med. and Surg. Rep., Phila. 1880, p. 417. *Golding Bird*: Guy's Hosp. Rep., vol. iii. 35. *Good*: The Study of Med., Phila. 1825, vol. i. p. 162. *Gourdon.** Thèse inaug. de Paris, 1875. *Griffiths*: Trans. Path. Soc. Phila. 1886. *Grisolle*: Traité de Path., Interne grue. ed., Paris, 1869, ii. p. 753. *Gross*: Boston Med. and Surg. Journ., 1881, p. 507; 1885, p. 476. *Harley*: Trans. Path. Soc. Lond. 1859-60, xi. p. 92. *Hess*: Med. and Surg. Rep., Phila. 1880, pp. 356-363. *Huchard*: La France Médicale, 26e. au 1879, p. 34. *Hunt*: Trans. Med. Soc. N. J., 1877, p. 231. *Jugot*: L'Union Méd., 1868, t. v. p. 511. *Kloman*: Med. Times, Phila. 1871-2, vol. ii. p. 144. *Laennec*: Bull. Soc. Anat. de Nantes, 1833, Par. 1885, vii. 55. *Laget*: Bull. Soc. Anat. de Paris, 1875, p. 843. *Lamborn.** Bull. Soc. Anat. de Paris, 1841, p. 268. *LeBret*: Annales de Dermatologie, 1869. *Lee*: Med. Times, Phila. 1880, i. p. 631. *Lereboullet.** Gaz. hebdom., 1875, Nos. 32, 33. *Leube*: Ziem. Cyc. vol. viii. p. 369. *Longuet*: Rec. de mem. de méd. chir. et phar., Mil, 1878. *Makuna*: Brit. Med. Journ., March 19, 1887. *Muhlenberg*: AMER. JOURN. MED. SCI., Jan. 1878, p. 146. *Percival.** Mem. Med. Soc., Lond. 1789, vol. ii. p. 60. *Poignard*: Thèse inaug., Paris, 1875. *Raynaud.** Bull. de la Soc. Anat., Paris, 1874, p. 250. *Rothmann.** Deutsche Med. Zeit., No. 53, 1887, vide Bost. Med. and Surg. Journ., 1887, p. 190. *Skerritt*: Brit. Med. Journ., 1878, vol. ii. p. 367; Lancet, 1879, vol. i. p. 302. *Wales*: System of Med. by American Authors (Pepper, Editor). vol. ii. p. 763. *Wannebroucq.** Assoc. franc. pour l'avancet. de Sci., Lisle, 1875, 3e. ser. p. 694; Bull. Méd. du Nord, 1863, 2c. ser., t. iv. p. 215. *Welch*: Trans. Med. Soc. N. J., 1876, p. 257. *Willard*: Trans. Path. Soc., Phila. 1876-7. *Winslow*: Maryland Med. Journ., Sept. 4, 1886, p. 361. *Wood*: Pract. Med., 6th ed., 1866, vol. i. pp. 708-9. *Worms.** Bull. de la Soc. Anat., Paris, 1863, p. 117. *Carter*: Tr. M. and Phys. Soc. Bombay (1886), 1887, N. S., No. ix. 28-34, 1 plate (this is a croupous exudate).

¹ References marked with an asterisk are taken from Field's Prize Essay on Membranous Enteritis, 1887. I have omitted all references that are to be found in the Medical and Surgical History of the War of the Rebellion, Part ii., Med. Vol., pp. 363 to 368, as the publication is so generally accessible that those specially interested can consult it in the original.

Specimens of the membranes are preserved in several museums, to which I have referred in an earlier communication (Med. News, Aug. 7, 1886).

A CLINICAL STUDY OF CARCINOMA OF THE BREAST,
AND ITS TREATMENT.

BY SAMUEL W. GROSS, M.D., LL.D.,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON
MEDICAL COLLEGE OF PHILADELPHIA.

(Concluded from page 236.)

IN the March number of this Journal the consideration of the pathological physiology of carcinoma of the breast was brought to a close by an examination into the frequency of metastatic deposits. In the present paper the prognosis and treatment will be subjected to critical inquiry.

Prognosis.—The facts deduced from the morbid changes which ensue in carcinoma of the breast, and which refer to its local extension and general dissemination, clearly demonstrate that the prognosis of the affection is eminently unfavorable. This statement becomes the more apparent from the study of the cases which pursue a natural course and of those subjected to the knife. In this study are included the duration of life in each class and the influence of the operation on the progress of the disease.

Of 1527 cases, 137 ran a natural course, and 1390 underwent operation.

Of the 137, 117 were dead, and of these in which the date was noted,

26.50	per cent.	died in between	5	and 12	months.	
32.47	"	"	"	12	"	24
12.82	"	"	"	24	"	36
11.11	"	"	"	36	"	48
6.83	"	"	"	48	"	60
3.41	"	"	"	60	"	72
6.83	"	died after six years.				

The average duration of life was 28.6 months.

Of the 536 cases which perished after operation with recurrence of the disease, and in 73 of which metastases were discovered, and were suspected in 56,

10.50	per cent.	died in between	6	and 12	months.	
33.00	"	"	"	12	"	24
24.03	"	"	"	24	"	36
9.95	"	"	"	36	"	48
7.91	"	"	"	48	"	60
5.04	"	"	"	60	"	72
9.51	"	died after six years.				

The average duration of life in these 536 patients was 38.5 months; so that a comparison of the two tables shows that the course of the

disease is retarded by the removal of the growth; and a comparison of the two averages indicates that operation adds ten months to the life of the patient.

Not only is life prolonged by operation, but the removal of the disease results in permanent recovery in 11.83 per cent. of all cases. As we have already seen, death from metastases occurs at 29.4 months, and the average date of death of those who succumb without or with operation is 33.5 months. We shall, moreover, see presently that local recurrence of the disease after three years is met with in only 2.30 per cent. of all cases. Hence a radical cure may be assumed if the patient has survived the disease over three years without local or general recurrence after the last operation, or if she has died of some intercurrent malady under the same conditions.

Of 1234 cases submitted to the knife, in which the histories could be followed, 134 were still living, and 12 had died. Of these 146, recurrent growths were removed in 16; and there was freedom from disease after the last operation in

45	for between	3 years and 1 month and	3 years and 11 months.
25	"	4 "	" 4 " 11 "
22	"	5 "	" 5 " 11 "
18	"	6 "	" 6 " 11 "
9	"	7 "	" 7 " 10 "
7	"	8 "	" 8 " 9 "
4	"	9 "	" 9 " 10 "
4	"	10 "	" 10 " 10 "
3	"	11 "	" 11 " 9 "
4	"	12 "	" 12 " 8 "
3	"	13 "	" 13 " 8 "
1	for	14 "	" 7 "
1	"	15 "	" 7 "

The average time of cure was five years and nine months, and the disease had existed before operation, on an average, for 13.3 months. The cases were not selected in order that the best possible results might be obtained, since I find that of 134 in which the nature of the operation is noted, the mamma was removed and the axilla was cleared out in 83, and the breast alone was amputated in 51, although in three of these enlarged glands were left intact in the axilla, and yet the cure was assured at the end, respectively, of five years and nine months, six years and one month, and ten years and ten months. It, however, appears, that the percentage of cures is greater by 5.10 when the axilla is free than when the glands are infected, and that local reproduction does not militate against a final cure, if the tumors be freely extirpated as soon

as they appear. Of the 16 examples of repullulation there was one recurrence in 12, two recurrences in 3, and three recurrences in 1. In these four cases the subjects were free from disease for three years and six months, three years and seven months, five years, and twelve years after the last operation. The practical deductions which can be gathered from such data are so clear that they do not require comment.

As a further proof of the influence exerted upon the duration of life by radical operations, attention may be called to the fact that nearly 30 per cent. were free from the disease after a lapse of six years; while of the 117 patients in whom no operation was practised only 6.83 per cent. survived after that period.

Sir James Paget,¹ in speaking of the duration of life after operation, says: "I am not aware of a single clear instance of recovery—of such recovery—that is, as that the patient should live for more than ten years free from the disease." Applying this severe test, an examination of the table will show that 1 in $9\frac{1}{8}$ fulfils this condition.

In addition to the 146 permanent cures after operation, 134 cases were alive without recurrence from the last operation for a period which varied from 3 weeks to 3 years, or 18.5 months on an average, and 49 were dead without local reproduction, their mean life having been 20 months. Of these 183, 6 remained well for three years, so that they should really be regarded as cures.

If the patient survives an operation, local recurrence of the disease may be looked for. Of 1390 operations, 198 died from its immediate effects, thereby leaving 1192 cases for the consideration of the question of local reproduction. Of these cases, 156 are devoid of further history, having been lost sight of immediately after recovery; so that of 1036 patients

329 were well, but 35 had had recurrences.

121 were alive with recurrence.

407 died with recurrence, but with no evidence of metastases.

56 " " " and with presumed metastases.

73 " " " " " actual metastases.

35 " " metastases, but without recurrence.

15 " " presumed metastases, but without recurrence.

It will thus be perceived that the tumor reproduced itself locally in 692, or 66.80 per cent., after 1036 operations, a fact which accords with the infiltrating nature of the disease, as demonstrated by observations during life and during operative procedures.

In 478 cases in which the date was noted, the periods of recurrence were as follows:

¹ Lectures on Surgical Pathology, 3d ed., p. 649.

				Within 15 days in 43 cases.		
From	end	of	1st	to end of	1 month	63 "
"	beginning	"	4th	"	"	105 "
"	"	"	7th	"	"	87 "
"	"	"	10th	"	"	45 "
"	"	"	13th	"	"	61 "
"	"	"	19th	"	"	30 "
"	"	"	25th	"	"	17 "
"	"	"	31st	"	"	9 "
After 3 years						7 "
						11 "

The table shows that 44.14 per cent. of the recurrences took place in 3 months, while after 12 months there were 74, or 15.5 per cent., and after 3 years there were only 11, or 2.32 per cent. The average period for all cases is 9.4 months. The cases of local reproduction within the first half year were doubtless examples of continuous growth, rather than of recurrence, and merely indicate that the original disease was not thoroughly removed. They, moreover, lead to the belief that, if recurrence does not ensue in that time, the chances for the patient are relatively good, and that the prognosis is all the more favorable as the period of freedom from signs of local contamination prolongs itself. The exceptional cases prove the rule that the patient is safe from reproduction after three years from the date of operation.

In 496 cases, in which the point is noted, the recurrent local disease was seated

				Per cent.
In the cicatrix, remains of mamma, or vicinity, alone			in 294, or	59.27
" " " " " and glands			" 117, "	23.59
" glands alone			" 77, "	15.52
" opposite breast			" 8, "	1.61

Its locality, as influenced by the operation practised in 409 cases, was as follows:

- Partial or total extirpation of the mamma without the glands, 96 cases.
 Recurrence in or near the cicatrix, 46 cases, or 47.91 per cent.
 " " the glands alone, 19 " 19.79 "
 " " cicatrix and glands, 31 " 32.29 "
- Amputation of the breast with extirpation of the glands, 313 cases.
 Recurrence in or near the cicatrix, 235 cases, or 75.08 per cent.
 " " the glands alone, 38 " 12.14 "
 " " both places, 40 " 12.77 "

In connection with this table there are two interesting practical facts. In the first place, where the breast and glands are removed, the disease reproduces itself, on an average, in 6.4 months, while when the breast alone is extirpated, recurrence follows in 7.7 months. Secondly, in the

former operation the axillary glands are the seat of recurrence in 25 per cent. of all cases, while they are affected in 52 per cent. of the incomplete operations. Hence, the disease is more grave when the axilla is affected, but by clearing out that cavity in all operations, we may naturally expect to diminish, if not prevent, further local dissemination, and remove foci of general infection.

A review of the facts contained in the preceding pages in regard to the prognosis of carcinoma, or the duration of life, as influenced by permitting the disease to pursue its course without surgical intervention, or by endeavoring to stay it by a resort to the knife, leads us to adopt the following conclusions :

That when left to itself carcinoma inevitably kills, by its baneful consequences as a local disease, or by its remote multiplication.

That about one in seven, or 14.24 per cent., of the patients die of the operation itself; but that the risk is not so great as to forbid interference, since it adds ten months to the life of the patient.

That operations of all kinds definitely cure 11.83 per cent. of all patients, or nearly as many as they destroy.

That the patient is safe from reproduction if three years have elapsed since the operation; and,

That, finally, recurrence may be delayed for several months, or be prevented altogether, by clearing out the axilla at the same time that the entire breast is removed.

Diagnosis.—The diagnosis of scirrhus of the breast in its early stages, or before there is implication of the surrounding tissues and the lymphatic glands, is based upon the age of the patient, the average being forty-eight years, the dimpling of the skin, the retraction of the nipple, the immobility of the solitary tumor in the mamma, or if it be seated at the periphery, its intimate attachment, its nodular outline, its small size, its slow growth, and its stony hardness; and the diagnosis is strengthened if there were antecedent discharge from the nipple and malignant papillary dermatitis. When the disease has made some progress, or after the fifteenth month of its existence, the adhesion and invasion of the skin, the enlargement and induration of the associated lymphatic glands, the occurrence of ulceration and fixation to the chest, and the impaired nutrition of the patient, constitute a group of signs which can scarcely be mistaken.

Although scirrhus carcinoma is, as a rule, readily diagnosticated, it may be confounded with chronic abscess, gumma, and involution cysts. Thus, a 2-para, at the age of thirty-four years, was struck on the breast by her husband. Shortly afterward she observed a hard lump in the upper and outer quadrant, which soon became the seat of sharp, lancinating pains. At the end of three months the swelling was as large as an orange, slightly attached to the skin, and apparently to the lower

border of the pectoralis major muscle, the nipple was somewhat retracted, and two enlarged glands were felt in the axilla. After extirpation, by one of my acquaintances, incision into the presumed carcinoma disclosed an abscess with thick walls. In a case recorded by Esmarch¹ a tumor as large as a fist, of four weeks' standing, neither tender nor fluctuating, but attended with infiltration of the surrounding tissues, retraction of the nipple, and enlargement of the axillary glands, was diagnosticated carcinoma. The tumor would have been extirpated had not the menses appeared, and it burst and discharged pus two days afterward.

In November, 1883, a married woman, aged twenty-eight years, presented herself at my clinic on account of a hard tumor, of four months' duration, seated beneath the areola and to the outer side of the nipple. The skin was seamed, infiltrated, and adherent, the nipple was drawn toward the growth, and the axillary glands were swollen. Careful inquiry elicited a history of syphilis, an abortion at three months, and one at three years after marriage. Under mixed treatment the tumor promptly disappeared.

Involution cysts have not infrequently been mistaken for scirrhus, and I, myself, on one occasion removed a cystic breast under the supposition that it was an example of hard carcinoma. In any case of doubtful diagnosis the tumor should, therefore, be cut into before the breast is sacrificed.

A soft, lobulated, voluminous, solitary, and rapidly increasing tumor, occurring at about the forty-ninth year, and attended with infection of the glands and skin, retraction of the nipple, fixation to the chest, and possibly extension to the opposite breast, but without discharge from the nipple, or without marked tendency to prominence of the veins or ulceration, is a medullary or encephaloid carcinoma.

A hard, very slowly growing, small, solitary tumor, occurring toward the forty-seventh year, with adhesion to the skin, and it may be nodules in that structure, prominence of the veins, retraction of the nipple, and enlargement of the glands, and, possibly, with invasion of the opposite breast, fixation to the chest, ulceration, and discharge from the nipple, is a colloid carcinoma.

A densely hard, irregular and knotty, contracting and small, solitary tumor, occurring at about the forty-ninth year, and attended with retraction of the nipple, infection of the glands and skin, and, possibly, distinct tubers in the skin, ulceration, and immobility on the chest, is an atrophying scirrhus.

Treatment.—From the great frequency of mammary carcinoma, and its inevitably fatal termination if it be permitted to pursue a natural course, there is no subject within the entire domain of surgery of more importance

¹ Langenbeck's Archiv, Bd. xxi. p. 627.

than that of its treatment. In discussing this question, we fancy that it will not be denied that the management should be based solely upon principles deduced from a careful study of pathological facts, and the results of surgical intervention, and not upon the old theory of the constitutional nature of the disease. Carcinoma is now held to be primarily a local growth by all leading pathologists, with the probable solitary but conspicuous exception of Sir James Paget, and the day has passed for the physician to declare that a tumor was not a cancer because it did not recur after removal. These truths cannot be too forcibly or too frequently impressed upon the laity and the family attendant; and the sooner women learn that the disease can be cured by early and adequate operation, the better will it be for their sex, and the greater will be the credit accruing to our art.

In our study of the clinical course pursued by the affection, it has been pointed out that, with its advance, its malignant attributes manifest themselves, first, by local or regional dissemination; secondly, by infection of the associated lymphatic glands; and, thirdly, by the development of secondary growths or deposits in the various tissues and organs. Hence, our aim should be to prevent these disastrous occurrences by a resort to the knife, which is the only measure upon which reliance can be placed.

That surgical intervention does prevent, to a certain extent, the invasion of the paramammary fat and connective tissue, skin, and subjacent muscles of the chest, is shown by the following facts. Observation during life and during operations, indicates that the contiguous structures are infected in 82.95 per cent. of all instances; while of 1036 operations there was local reproduction in 692, or 66.80 per cent. Hence, extirpation precludes continuous invasion of the surrounding tissues in 16.15 per cent. of all cases.

The influence of operations upon the prevention of gland infection is most decided. Thus, of 1638 cases, the glands were palpable in 1115, or 68.07 per cent., when the patient first came under observation, while of 496 operations in which this point is noted, the recurrent disease was seated in the glands in 194, or 39.11 per cent., or in 28.96 per cent. less than when the affection was not interfered with. It is, moreover, noteworthy that glandular recurrence was more frequent by 27 per cent. when the breast alone was removed than when it was extirpated along with the contents of the axilla.

Not less striking is the influence of operations upon the obviation of secondary visceral growths. Thus, of 256 patients dead of carcinoma, in whom the disease pursued a natural course, metastatic tumors were discovered in 158, or 61.71 per cent. Of 838 dead after operation, on the other hand, secondary deposits were found in 286, or 34.12 per cent., so

that operations prevent implication of the internal organs in 27.59 cases out of every hundred.

Having thus seen that the removal of the breast frustrates to a great extent regional, glandular, and general infection, it is not surprising that operations should, as has been already pointed out, not only prolong life by ten months, but, in addition, bring about a cure in nearly 12 per cent. of all cases, in six-tenths of which the glands were implicated, and in one-ninth of which the recovery was permanent after extirpation of recurrent growths. When, in addition to these complications, it is considered that in these cases the disease had already existed, on an average, for 13.3 months, and that seven-tenths of the operations must be regarded as having been inadequate to remove all the affected tissues, the success is remarkable, and justifies the inference that early and thorough operation will greatly increase the ratio of cures. In point of fact, the results of free excision of the breast, along with extirpation of the axillary contents, in every case indicates that the cures may be nearly doubled. Thus, of 115 cases in which the result was ascertained, from the practice of Mitchell Banks and myself, 24, or 20.86 per cent., were permanently successful. If these be deducted from the remainder, the latter yield only 10.99 per cent. of cures, thereby showing the great advantage of attacking the axilla in all cases.

The rule to remove the axillary contents in every case should be absolute. In not a few instances infected glands cannot be detected prior to operation, but none the less must the rule be observed. The vast importance of attending to this step of the procedure is shown by the following facts. In 16 of my own cases the glands could not be felt from without, but in 14 of these they were present when the axillary space was explored. Hence, my experience indicates that the glands may be expected to be implicated in 87.5 per cent. of all cases in which they are not palpable through the coverings of the axilla. In Kuester's¹ practice the proportion of glandular involvement under similar circumstances was somewhat larger, as his last 65 cases demonstrate infection in 57, or 92 per cent.

The results that I have indicated have not been obtained without a considerable mortality, since of the 1390 operations 198, or 14.24 per cent., were fatal from the immediate effects of the procedure. The reason for this high rate of death is to be found in the defective manner in which the axillary wound was managed in a large proportion of cases in preantiseptic days, through which hemorrhage, erysipelas, septicæmia, and pyæmia were common occurrences. Banks, one of the latest writers on the subject, lost 10 out of 82 cases in which the breast and axillary glands were extirpated from septic surroundings. My own 43 operations,

¹ Deutsche Zeitschrift für Chirurgie, Bd. xxxvi. p. 143.

which were done up to May, 1887, and which were more extensive than those of Banks, afford two deaths—one from fat embolism and one from pneumonia—and of the ten additional cases in the hands of my colleagues in the Jefferson Medical College Hospital all recovered. Hence, my mode of operating, which will be described presently, has yielded a mortality of only 3.7 per cent. Billroth's operations for the removal of the breast and glands in preantiseptic days were attended with a death-rate of 21.3 per cent., while the mortality under antiseptic precautions was only 10.5 per cent.,¹ and there is every reason for believing that the future mortality of radical procedures will not exceed seven or eight per cent., provided the operation is strictly aseptic. Kuester's² last 96 cases, indeed, were attended with only five deaths, or a fatality of only 5.2 per cent. Even if the mortality should remain at 14.24 per cent. operations should be considered perfectly justifiable, since, in destroying that number, it is to be remembered that they cure twelve women out of every hundred. This statement applies to all sorts of operations; but the proportion of cures to deaths becomes the more striking if we consider those cases only in which thorough operations were practised. Thus, of 257 examples of extirpation of the breast and axillary contents from the practice of Banks, Kuester, and myself, 12.06 per cent. perished, and 19.38 per cent. were cured.

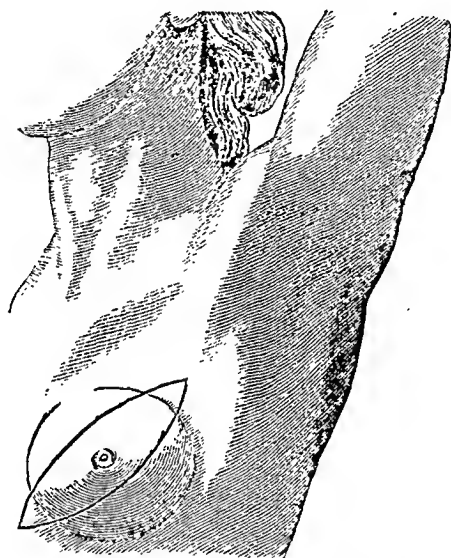
In no operation for malignant growths is the requirement to go far beyond the apparent limits of the disease so urgently demanded. This is shown not only by the pathological facts as to a regional dissemination, and the common recurrences after operation, but also by the anatomy of the healthy gland. The normal limits of the breast are very uncertain. Small, scarcely perceptible lobules frequently lie at some distance from the main body of the gland, particularly in the axilla and just below the clavicle. In one case I found an affected portion near the shoulder, and it would not have been discovered in the ordinary methods of operating. It is for these reasons, as well as on account of the want of success that attended my earlier partial and incomplete operations, and the fact that the experience of centuries has demonstrated that recurrence takes place in the tissues that are left behind in the old operation, that for nine years I have amputated the entire breast with its coverings, and invariably cleared out the axilla. In the old operation, shown in Fig. 3, the nipple and a portion of the skin are included in two oval incisions, the flaps are raised, the mamma is then rapidly dissected or torn from the pectoral fascia, the vessels are secured, a drainage tube is inserted, and the edges of the wound are united with sutures. The surgeon congratulates himself upon having done a neat bit of work, and the patient is pleased with the rapidity of her recovery. But beneath the

¹ Op. cit., p. 155.

² Deutsche Zeitschrift für Chirurgie, Bd. 26, p. 147.

flaps so neatly apposed are hidden the germs of recurrence in the fat and pectoral fascia that remain behind, and in the lobules, which I have more than once seen operators overlook. In these cases, axillary glands were also removed, if they were felt prior to operation, but the surgeon was unmindful of the fact that many glands might be buried in the axillary fat, where they could have been detected if the incision had been prolonged, and the finger had even carelessly searched for them. Such is the ordinary procedure of ridding a woman of so formidable a disease; such is the operation which has cast an opprobrium on surgery from which it will take many years to recover; such is the operation

FIG. 3.



The ordinary method of removing a carcinomatous breast.

which we have to thank for the large percentage of recurrences, for the fatal progress of the disease, for the great injustice done our patients, and for the harmful impression made upon the laity, and not a few of the profession, as to the inutility of interference.

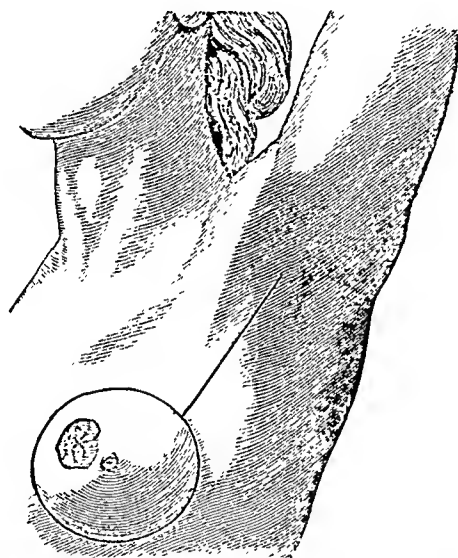
In exceptional cases, as when the patient's life is threatened by repeated bleeding, by exhausting and offensive discharges, and by great suffering, the partial operation is eminently proper to afford temporary relief. If the aim, however, be to effect permanent riddance, the knife must be employed with no sparing hand; all tissues, namely, the skin, paramammary fat, the entire gland, pectoral fascia, and axillary contents, which long and accumulated experience has demonstrated to afford the seats of recurrence, must be freely extirpated.

With this object in view, even in the most favorable of all cases, or one in which the tumor is of moderate volume, no matter what its situation may be, and devoid of superficial and deep attachments, and

the glands cannot be felt before operation, the procedure to which I have resorted in 43 cases, and which is delineated in Fig. 4, may be thus outlined, strict aseptic precautions being observed throughout:

The entire mammary region having been carefully palpated, while the patient is supine, in order to discover any outlying lobules should they exist, a line is drawn with an aniline pencil around the entire circumference of the breast as a guide for the knife. If the tumor be peripheral, the incision must extend for at least one inch beyond its apparent limit. A stout large knife is then carried along the line down to the pectoral muscle, spirting vessels are temporarily controlled with the fingers of the assistant, or with clips, or forepressure forceps, and the breast is removed along with the pectoral fascia, through which the

FIG. 4.



The method of operating for carcinoma of the breast, as practised by myself.

muscle is exposed as if for class-room demonstration. The vessels having been permanently secured with catgut ligatures, the fat around the line of the incision is carefully explored for any outlying nodules of disease, a precaution, the observance of which will be made apparent when I state that in three of my cases they were found, thereby showing to what extent the disease may disseminate itself even in apparently simple cases. Any remaining nodules having been removed, the pectoral muscle is now carefully examined with the eye and fingers for nodules. If present they should be freely removed, and the wound-seared with Paquelin's cautery. The large exposed surface having been protected with an asepticized towel, the arm is carried outward and upward to rather more than a right angle with the trunk, and an incision is pro-

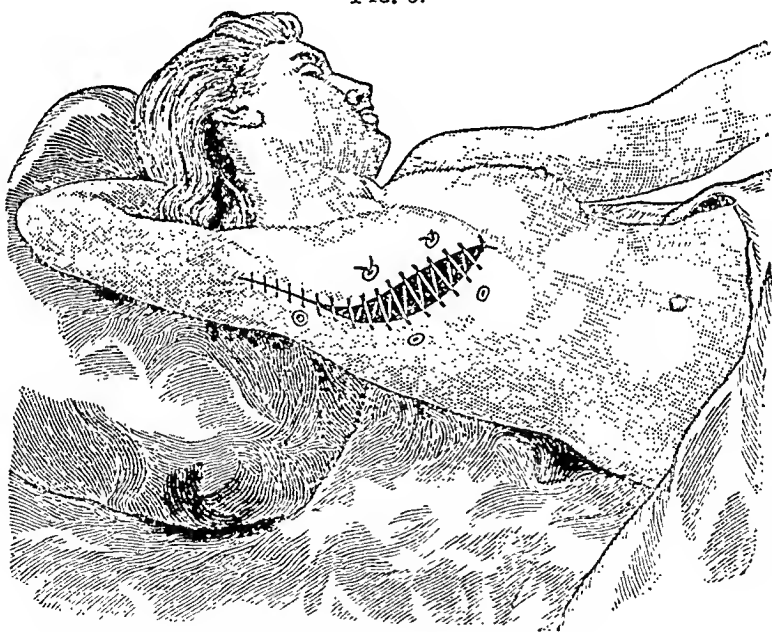
longed into the axilla about three-quarters of an inch below the lower border of the great pectoral muscle, through which the deep fascia is opened to the same extent as the cutaneous wound. If there happen to be a number of small glands or two or three large ones, and they are not united to the surrounding tissues, their removal, along with the entire fatty contents of the axilla, can easily be effected with the fingers and scissors. When, however, as more frequently happens, the glands and other axillary contents are converted into an inseparable mass, they will have to be dissected out with the knife and scissors curved on the flat. In performing this step of the operation the lower portion of the mass and that which adheres to the side of the chest, and pectoralis minor, and surrounds the intercosto-humeral nerve and other superficial nerves should first be separated, and we should carefully work our way up to the apex of the space, including every vessel, arterial or venous, between the two ligatures before dividing it. Unless this precaution be observed large venous trunks are liable to be cut or lacerated close to their points of entrance into the axillary vein, an accident which will be followed by troublesome hemorrhage. The most difficult part of the operation is the separation of the glands from the axillary vein as it lies under the pectoral muscle. In many cases this can be effected with the finger-nails, the arm having been brought toward the trunk; but when they are firmly incorporated with the vein, provided the adhesion exists to a limited extent, the corresponding portion of the vessel should be removed between two ligatures. Glands which are attached to the vein immediately beneath the clavicle are best reached by carrying an incision in the interval between the sternal and clavicular origins of the pectoralis major muscle, as in the operation for ligation of the first portion of the axillary artery. Such a procedure will do away with the necessity for division of the pectoralis muscle, which is recommended by Verneuil.¹ When the glandular involvement is very extensive, to afford more room, Esmarch² favors amputation at the shoulder-joint, but such an extreme measure is, in my opinion, useless, as it will be found that all diseased tissues cannot be removed. Finally, the mass is brought down and the dissection continued until it is separated from the posterior boundary of the axilla, great caution being exercised lest the subscapular artery, vein, and nerves be injured, thereby avoiding hemorrhage and impairment of the movements of the arm. Should the axillary vein be wounded, if the injury be slight, hemorrhage may be prevented by including the opening in the grasp of forcepressure forceps, which, as I know from experience, need not be retained longer than two days; should the injury, however, be extensive, a ligature should be cast around the vessel on each side of the opening.

¹ Gazette des Hôpitaux, 1879, p. 955.

² Deutsche med. Wochenschrift, No. 17, 1893, p. 258.

The parts are now thoroughly irrigated with the 1 to 1000 solution of corrosive sublimate, and the edges of the wounds are brought as thoroughly as possible into apposition. If the breast flaps be raised from the subjacent parts for an inch and a half or two inches, one will be astonished to find how nearly the wound may be closed in corpulent women with large breasts, in whom before approximation the exposed surface was as large as a dessert plate, and how accurately the wound can be united in thin women with small breasts. In the former class of patients, I first insert two or three of Macewen's button sutures at the bases of the flaps, and then approximate the free edges with the continued suture. In this way the edges of the largest wounds may be brought so nearly together, that a space not exceeding two fingers' breadths in width will have to unite by the process of granulation. A hole having been punched through the most dependent portion of the posterior axillary flap, into which a glass drainage tube is inserted, the edges of the axillary wound are coaptated by the continued suture, the material for the suture being heavy sublimate silk. These points are shown in Fig. 5, but the edges of the breast wound are represented too far apart. When

FIG. 5.



Mode of approximating the edges when the wound cannot be entirely closed.

it is possible to bring together the edges of the wound, a drainage tube is employed; otherwise it is not required. Before applying the outer dressings, a description of which is unnecessary, both wounds are again thoroughly washed out with the corrosive solution. The drainage tube is removed at the end of twenty-four hours, and the stiches are taken

away on the eighth day. If the wound has been a partially open one moist antiseptic gauze is continued until it has fully cicatrized, which requires from four to six weeks.

When, as usually happens, it is possible to bring the edges of the wound in apposition, it is closed with the continuous chromicized catgut suture, and painted over with iodoform collodion. At the expiration of eight or nine days, when the crust will have become detached, the union will be found to be perfect.

Such is the radical operation which I have practised for some years, so radical, indeed, that I fear that, for the present, it will not gain many adherents. Thus, in a discussion on immediate reunion in amputation of the breast, at the Société de Chirurgie,¹ 1885, Lucas-Championnière, Polaillon, Marc Sée, Tillaux, and Trélat declared against free removal of the skin, and Polaillon even went so far as to assert that it did not influence recurrence. Verneuil and Després, on the other hand, were in favor of removing the skin largely, and leaving a partially open wound, through which, the drainage being excellent, erysipelas and other wound complications were prevented. In the remarks on Banks's paper at the Harveian Society,² in the spring of 1887, in which that surgeon reported 82 cases of extirpation of the breast along with the axillary contents, Bryant and Butlin questioned whether the complete operation afforded better results than the incomplete, and Butlin,³ Pick, and Cripps held that clearing out the axilla in every case was neither necessary nor judicious, although Pick asserted that the skin should be freely removed. Owen was the only member who gave cordial support to the procedure urged by Banks, the prevailing opinion being that the operation was attended with an excessive mortality, and did not lessen the risk of recurrence.

The preceding views enunciated by practical surgeons are entirely theoretical. Let us turn from surmise to an analysis of facts. I have already stated that the mortality of my operation, which is more extensive than that of Banks, and of which nearly one-third were not aseptic, is only 3.7 per cent., although in addition to the removal of the entire breast with its coverings and evacuating the contents of the axilla, large portions of the pectoral muscle were excised in 1 case out of every 7. It has already been pointed out that of 313 amputations of the breast as ordinarily practised, combined with extirpation of the glands, the

¹ Gazette des Hôpitaux, Nos. 4 and 7, 1885.

² British Medical Journal, March 12, 1887, p. 572.

³ In his recent work on The Operative Surgery of Malignant Growths, Butlin enters fully into the question of clearing out the axillary contents, and asserts that the axilla should on no account be interfered with unless the glands are obviously enlarged. Had so good a pathologist as Butlin been in possession of the facts derived from my practice and that of Kuester, he would scarcely have given utterance to so pernicious a doctrine, a doctrine which we fear will so influence English surgeons as to counteract in great measure the recent advances that have been made in the treatment of carcinoma of the breast.

recurrent growth was seated in or near the cicatrice in 235, in the glands in 38, and in both situations in 40; in other words, recurrence was met with in the remains of the breast tissues in 275, or 87.86 per cent. Included in these figures are my own cases. If these be deducted, amputation of the breast as usually done, with clearing out the axilla, demonstrates that in 94.47-per cent. the disease recurred in or near the cicatrice, while my cases show only 30.55 per cent. of recurrences in that locality, the percentage in favor of immunity from local reproduction being in favor of my procedure by 63.92 per cent. In addition to these advantages, I have obtained 21.05 per cent. of cures.¹ These are facts, not mere expressions of opinion; and until some other operation is brought forward that will show a still further diminished mortality, a smaller proportion of recurrences, and a greater number of permanent recoveries, I contend that the procedure that I practise is the most successful and most rational that has as yet been devised.

Although my mode of operating has afforded better results than that practised by any other surgeon, a study of the cases of Banks, whom I have seen operate, and who does not remove as much of the skin as I do, shows that he met with 32.83 per cent. of recurrences, and obtained 20.85 per cent. of cures, so that his results are nearly as good as my own. On this account I felt as if I had, possibly, sacrificed too much of the integument; and I have in four recent cases so far modified my operation, the skin in none being apparently affected, as to save a sufficient amount of that structure to admit of bringing the wound nicely together without tension. These four cases can be followed, and whenever I feel assured that I will be able to trace my patients, I intend giving this procedure a fair trial. When, however, the subject lives at a great distance, or is too poor to return in the event of recurrence of the disease, I will adhere to the more sweeping procedure.

When the contents of the axilla form a large, hard, nodular tumor, and the disease has existed for some time, before amputating the mamma, I make it a rule to attack the axilla first, since in many of these cases it will be impossible to remove the entire disease even if the surgeon were to excise the vessels and the axillary plexus of nerves to which the mass adheres. If all diseased tissues cannot be extirpated, nothing

¹ Of my 43 operations, 2 were fatal; 5 patients were lost sight of after recovery; the disease recurred in 16; and 20 subjects remain well or perished from other affections without recurrence. Of this last class 8 were cured; so that of 38 cases in which the history could be traced, 8, or 21.05 per cent., were examples of permanent recovery. Of these, 1 lived for 7 years and 10 months, while the remainder are still doing well, 1 for 8 years and 7 months, 1 for 8 years and 6 months, 2 for 6 years and 3 months, 1 for 3 years and 9 months, 1 for 3 years and 5 months, and 1 for 3 years and 1 month after operation. The next best results have been attained by Banks, Estlander, and Kuester, who cured, respectively, 20.85, 20, and 17.85 per cent. of their cases. Other surgeons who have recorded a higher rate of cures do not include the fatal cases in their calculations, but base their ratio on the number of patients who have recovered from the operation. Such an estimate is manifestly incorrect.

further is done. In such cases removal of the breast prior to attempts to extirpate the axillary mass involves an unnecessary operation. Should the supraclavicular glands be invaded, I always cut down upon them first and remove them, if they be superficial. Should they be deep and surround the large vessels and nerves, attempts at their removal would be not only dangerous, but useless.

In atrophying scirrhus¹ of several years' duration; in any variety of carcinoma in which the attachments involve the entire mammary region; when nodules are extensively disseminated over the surface of the chest; in the cuirass form of carcinoma; when immobility of the arm, œdema, and pain indicate that the vessels and nerves of the axilla are intimately connected with the mass; and when there are indications of visceral implication, the disease has advanced so far that radical operations are unjustifiable. Implication of both breasts is not a contraindication.

In cases unfit for operation, life must be rendered endurable by the relief of pain, the arrest of hemorrhage, and the correction of fetor. If the suffering be great, it may be allayed by the hypodermatic injection of morphia and atropia, repeated as often as it may be required. When the pain is increased by the rapid growth of the neoplasm, during which the breast is hot, tense, and tender, nothing mitigates it so rapidly as the local application of a strong solution of acetate of lead, or of bags of ice. When the active symptoms have subsided these measures may give way to the application of an ointment composed of a drachm each of extract of belladonna and extract of stramonium to the ounce of lanolin. Œdema of the arm should be met by massage, elevation, and a flannel roller. Hemorrhage may be controlled by styptic cotton, although excision of the breast may be required if it recurs and threatens life. As a deodorizer, I have found that a one per cent. solution of chloral hydrate, or a three per cent. solution of citric acid, both of which remedies also possess the merit of assuaging pain, answer a better purpose than the germicidal antiseptics. Should the tumor be sloughing, it should be freely sprinkled with iodoform, and dressed with sublimate gauze.

With regard to general measures, it need only be stated that the diet should be nutritious and assimilable, and that the strength should be supported by alcohol and appropriate tonics.

1112 WALNUT STREET, PHILADELPHIA.

¹ In my Treatise on Tumors of the Mammary Gland, I expressed the opinion that operations should not be practised for atrophying scirrhus; but a renewed investigation based upon nearly three times as many cases as those upon which I framed that view, demonstrates that, when taken in hand early, atrophying scirrhus is as curable as ordinary scirrhus.

A CASE OF ALARMING HEMORRHAGE FOLLOWING EXCISION OF THE TONSILS.

By S. E. FULLER, M.D.,
OF BROOKLYN, N. Y.

THE infrequency of such cases as the following would seem to justify its publication :

Norman D., American, twenty-five years of age, law student and an athlete, came under my care for post-nasal catarrh and hypertrophy of the tonsils, in May, 1887. Having no faith in topical or general treatment for such a condition of the tonsils, excision was advised and done at my office. Mathieu's tonsillotome was the instrument used; as it cuts from behind forward there is no danger of wounding the pillars of the soft palate, and the screw by which the fork of the instrument is adjusted enables one to cut more or less of the tonsil as is desired. The right tonsil was very hard and the cutting was accompanied by a grating noise which was noticed by the patient, as well as myself at the time. The usual amount of hemorrhage followed, but was soon checked by sipping a solution of the tanno-gallie acid gargle of the London Throat Hospital Pharmacopœia (M. Mackenzie).

Mr. D. left my office at 4 P. M. in good spirits, expressing himself as feeling relieved that the slight operation was over. He ate his dinner at 6 P. M. and said to the family that he did so without pain. Soon after he dressed himself and attended a wedding, in church, where, at about 9.30, he complained of a sudden faintness, was assisted to the open air, when he immediately vomited a large quantity of blood—variously estimated by his friends, at from half a pint to a quart. He was taken to his home and put to bed where he again vomited over a pint of dark blood. A neighboring physician was called, and his father came for me.

I saw him at 11 P. M., he was then pale, somewhat nauseated, but as yet there were no signs of prostration. With the help of Dr. Little, who had been with him for an hour, I syringed his throat with hot water, wiped away the clots, and examined carefully for any bleeding vessel. None was found, but a very free oozing of blood was going on from the whole cut surface of the right tonsil. Pressure was made with a wad of styptic cotton over the cut surface, and continued as long as he could bear it, but this was for a few minutes only, as the presence of the forceps provoked a violent retching followed by vomiting of blood. Trial was then made of the tanno-gallic acid gargle above mentioned, hot water, cold water, ice, solution of salicylic acid in hot water, Monsel's salt applied dry to the cut surface and pressed down firmly, the patient lying on his right side. Thus we went through a long list of styptic and astringent remedies, each appearing to check the flow for a time, but as soon as we suspended our efforts for a few minutes he would complain of nausea, and soon after vomit a bloody fluid, showing that blood was still trickling down his throat and being swallowed. Hypodermatic injections of ergotin were given and later on brandy.

About three in the morning Dr. Spier was called, and upon his arrival another careful examination of the throat was made, but again we failed to find any special point of bleeding—as before, it was seen to

be a general oozing from the whole cut surface. Dr. Spier made trial of pressure with an improvised clamp, but was able to keep it up for a short time only. He then advised a continuance of the astringents and gave his opinion that it would be checked by them. We continued our efforts in this direction until 10 A. M., when the condition of the patient, cold perspiration, pulse at the wrist very feeble, complaining of thirst and a sinking feeling, for which frequent hypodermatics of brandy were given, made it plain that some more vigorous steps must be taken at once.

Dr. Little, who had been with me through the night, very kindly went for Dr. Spier with the request that he come to our assistance prepared to tie the carotid artery. This he promptly did, the ligature being placed upon the common carotid artery above the omohyoid muscle. I wish to state here that this operation was done at my request, and that the entire responsibility for the choice of the common carotid artery rests upon me. This in view of possible criticism.

The tightening of the ligature we expected would arrest the hemorrhage, but in this we were disappointed for it continued, as nearly as we could judge, exactly as before. It was now thought best to call another surgeon to our assistance and a telegram was sent to Dr. Sands asking him to come prepared to transfuse the patient if it should seem best.

The artery was tied at about 11 A. M. and the bleeding continued until about 2 P. M. The last remedy made use of before the bleeding ceased was a douche of very hot water which was used by my friend, Dr. McNaughton. I do not attribute the checking of the hemorrhage to the hot water however, as it had been used a number of times before during the night. The patient was now pulseless at the wrist and hypodermatics of brandy were frequently given.

Dr. Sands, who arrived at this time, at once proceeded to transfuse, about twelve ounces of a saline solution being slowly injected into the radial vein. The pulse returned at the wrist while it was being done.

From this time on there was no further hemorrhage and the only bad symptom was a pretty severe chill about two hours after the transfusion, following which the temperature rose to 102° , it, however, sank to 99° by the next morning and never rose above that point again. The patient was given nourishing food and no medicine; in a couple of days he developed a good appetite. The ligature came away from the carotid on the twenty-first day. The transfusion wound healed without suppuration. The operation was most skilfully done with thorough antiseptic precautions. As soon as the ligatures came away the patient was allowed to sit up and in a week he rode out. When last seen by me, a month later, he still showed very plainly the effects of the hemorrhage.

The following are some of the points which seem to be of interest in connection with this case.

1. *As to the frequency of such cases.* Different writers make varying statements on this point. Sajous says profuse hemorrhage occurs perhaps once in five hundred times, while an alarming flow does not occur once in a thousand times. According to Cohen, there are several records of more than a thousand operations at the hands of the same surgeon without the occurrence of any serious hemorrhage. M. Mackenzie

makes the following statement of his own experience: "As regards hemorrhage following excision of the tonsils, I have only once met with a case in which the bleeding appeared actually to endanger life." In the past fifteen years I have done this operation about two hundred times and have never met with a case of unusual hemorrhage before the present one. Taking an average of the statements of the authors I have been able to consult, I should say that such a case as this one occurs about once in a thousand operations. There are quite a number of cases recorded in which the hemorrhage has proved fatal.

2. *Causes and source of the bleeding.* The tonsil is situated between the pillars of the soft palate "in a sort of niche," resting on a layer of loose connective tissue, by which it is separated from the superior constrictor muscle. The whole gland can be enucleated by the fingers, or a blunt instrument, as was an ancient practice. As the internal carotid artery is external to the superior constrictor muscle it is plainly impossible to wound this vessel in excising the tonsil with any of the tonsillotomes now in use. In the reported cases of injury to this vessel while excising the tonsil a bistoury has generally been the instrument used. Velpeau reported four cases in which the internal carotid artery was laid open while a portion of the tonsil was being cut away with a bistoury. The vessels which supply the tonsil are the ascending palatine and tonsillar arteries (deep cervical branches of the facial) the dorsalis linguæ from the lingual, the ascending pharyngeal from the external carotid, and the descending palatine from the internal maxillary. Not only do these vessels anastomose freely with each other, but also with those of the opposite side. Ordinarily when a portion of the tonsil is excised the hemorrhage is free, but soon ceases spontaneously by the retraction of the cut vessels into the soft tissue of the tonsil. But if the tonsil has undergone fibrous degeneration, or is in a condition to which the term scirrhus has sometimes been applied, the cut vessels are held open and prevented from retracting and thus putting a stop to the flow. Sajous says that in the cases of profuse hemorrhage which occurred in his practice the tonsils were exceedingly hard to penetrate, which led him to think the cut vessels were kept open by surrounding fibrous elements adhering to them. Schede has remarked, "That very firm fibrous degenerated tonsils specially tend to after-hemorrhage in that the vessels within the stiff tissues remain gaping." By referring to the history of this case as given above, it will be seen that both the patient and myself noticed the hardness of the right tonsil, it cut like a scirrhus tumor.

Dangerous and not infrequently fatal hemorrhage follows this operation if the subject is a "bleeder." Whether Mr. D. was or was not a hemophilic, was discussed at the time. We were told that he had a cousin on his mother's side who was a bleeder and that he himself bled till he fainted after the extraction of a tooth about a year before the

operation on his tonsils. There was, however, no history of his ever having bled unusually from any of the accidents of childhood, nor any suffering from swelling of the joints; nothing, in short, but the bleeding which followed the extraction of a tooth in his twenty-fourth year. There was no hemorrhage from the left tonsil nor from either of the wounds inflicted by the surgeons. "In true hemophilia the tendency to bleed usually shows itself in the first year of life and in the great majority of cases before the fifth year." "Recorded cases of the disease appearing first later than the second dentition are not trustworthy" (Legg-Quain's *Dict. Med.*, art. "Hemophilia"). Other authorities might be quoted to the same effect, but I think it is plain that Mr. D. is not a "bleeder," and that the cause of this hemorrhage was the fibrous condition of his right tonsil, and the source of the hemorrhage was the above mentioned vessels which normally supply the tonsils.

3. *How to stop the hemorrhage?* Sir M. Mackenzie in his work on *Diseases of the Throat and Nose*, vol. i. page 86, says that, "The use of the tanno-gallic acid gargle of the Throat Hospital Pharmacopœia will at once arrest the hemorrhage. Half a teaspoonful of the remedy should be slowly sipped at short intervals. During the act of deglutition the styptic is worked into the cut surface of the tonsil and the hemorrhage is effectually restrained in all cases." If this statement were true in all cases it would be a sufficient answer to the above question, but, unfortunately, it does not always succeed in the hands of other surgeons. It was used in the case of Mr. D. and did not appear to be any more effectual than several other styptics which were tried, and all failed to arrest the bleeding. A careful search should be made for any vessels that might be spurting, and if one be found it should be twisted or tied. It would seem that pressure should control this hemorrhage, but we were unable in this case to stop it in this way. Whether made with the fingers or an instrument, such an amount of retching and vomiting was provoked as to oblige us to desist. The suggestion of Cohen to make pressure with a long pair of forceps one blade applied to the tonsil and the other upon the outside to make counter-pressure seems to me a good one. If the tips of the forceps were made broad enough to cover the whole tonsil and the handles closed with a catch like the ordinary Pean forcep, it could be firmly applied and left hanging from the patient's mouth without danger of being displaced by the retching.

There are a number of cases like this one recorded in the journals in which the flow of blood stopped when the patient fainted and did not return afterward. Dr. De Blois had a case at the Boston City Hospital of most alarming hemorrhage after tonsillotomy, which continued in spite of all efforts to control it for three and a half hours when the patient fainted, after which it gave no further trouble (*Boston Med. and Surg. Journ.*, March, 1887, page 309). Schede, of Hamburg (*vide König's Surg.*), reports two cases which he observed, where, after

various attempts to check the bleeding, it stopped permanently upon the occurrence of fainting. This, in my opinion, is the way the hemorrhage was checked in the case of Mr. D. He had become very restless and insisted upon sitting up, and it was while in this position, on the side of the bed, supported by his father, that Dr. McNaughton made use of the hot water; he became very faint and would have fallen to the floor had he not been held up, and when laid back upon the bed the bleeding had ceased and did not return.

The common carotid artery was tied in this case because it is the step advised by authorities under such circumstances. No one of the medical gentlemen who saw this case had had any experience with similar cases. In Schmidt's *Jahrbücher*, vol. 186, is related a case of severe hemorrhage after cutting off the left tonsil. Various hemostatics were tried unsuccessfully and in three hours the common carotid was tied (*vide Boston Med. and Surg. Journ.*, March, 1887, page 303). Mr. McCarthy tied the common carotid artery at the London Hospital for hemorrhage following excision of the tonsil and the patient recovered (MacKenzie). The common carotid artery has been successfully tied by Pepper for hemorrhage from sloughing tonsils in scarlatina (Druitt's *Surgery*).

Most of the writers on diseases of the throat mention the ligation of this vessel to check hemorrhage from the tonsil. The common carotid artery is tied in preference to the external carotid, "Because the uncertainty of origin of the vessels which supply the tonsil is against tying the external carotid" (Druitt's *Surgery*, edit. 1887, page 551).

"The operation of tying the external carotid artery is rarely performed, ligation of the common carotid being preferred on account of the number of vessels given off from the external carotid" (Gray's *Anatomy*).

While holding myself justified by the above mentioned authorities for the course pursued, yet the result of tying the common carotid artery in this case convinces me that it was an error. It had no appreciable effect upon the flow of blood, and in view of the origin of the vessels which supply the tonsils and of their free anastomosis, not only with each other but also with their fellows of the opposite side, it could hardly have been expected to have.

In many of the reported successful cases of tying this artery it is stated that the source of the hemorrhage was the internal carotid, and probably this is true of all of them. Believing it to be impossible to wound this vessel in excising the tonsil with a tonsillotome, I should, in any future case of excessive hemorrhage following this operation, depend upon pressure, hemostatics, and placing the patient in an upright position to encourage fainting; and if the patient were not a bleeder should expect to arrest the hemorrhage by these means.

HEREDITARY ANGIO-NEUROTIC ŒDEMA.¹

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO THE UNIVERSITY HOSPITAL, TO THE PHILADELPHIA HOSPITAL, AND TO THE INFIRMARY FOR NERVOUS DISEASES.

UNDER the terms *acute local*, *acute circumscribed* or *angio-neurotic* œdema, a disease has been described, characterized by the sudden onset in various regions of œdematous swellings, more or less limited in extent, and of transient duration. Although not referred to at any length in text-books or cyclopedias, the affection is evidently not very uncommon, as Dinkelaker,² a pupil of Quincke, has collected a number of cases from the literature. Quincke has himself referred to the subject in *Monatshefte für praktische Dermatologie*, 1882. Jamieson,³ of Edinburgh, has written on the subject and Graham⁴ has given a good account of the disease. Riehl⁵, Falcone,⁶ Strübing,⁷ Matas,⁸ have recently reported cases.

In three instances the disease appeared in succeeding generations, and it is this hereditary aspect which gives special interest to the following report:

Briefly summarized, the affection in the family which I have studied has the following characteristics:

1. The occurrence of local swellings in various parts of the body, face, hands, arms, legs, genitals, buttocks, and throat. In one instance, possibly in two, death resulted from a sudden *œdema glottidis*.
2. Associated with the œdema, there is almost invariably gastro-intestinal disturbance: colic, nausea, vomiting, and sometimes diarrhœa.
3. A strongly marked hereditary disposition, the disease having affected members of the family in five generations.

A member of the family, Mrs., H., aged twenty-four years, was admitted to the Infirmary for Nervous Diseases, September 20, 1887, and the following notes were taken by Dr. Burr, the house physician:

Medium sized, well-nourished brunette, admitted with neurasthenic symptoms. Has been married two years, no children. Has had good deal of back pain and menstruation is irregular and painful; was healthy as a child, and as a young woman. As long as she can remember, she has been subject to attacks of transient swelling in various parts—hands or fingers, knee-caps, elbows, buttocks, arm or thigh in fleshy parts, face, or more often the lips alone. The fingers have been so swollen that it was impossible to move them, and once the ring-finger was so greatly enlarged that the ring had to be filed off to prevent gan-

¹ Read before the Philadelphia Neurological Society.

² Dinkelaker: Ueber acutes Œdem. Inang. Dissertation. Kiel, 1882.

³ Edinburgh Medical Journal, June, 1833.

⁴ Canadian Practitioner, 1885.

⁵ Riehl: Abstract in London Med. Record, Dec. 1887.

⁶ Falcone: Gazzetta degli Ospitali, Feb. 24, 1886.

⁷ Strübing, quoted by Matas.

⁸ Matas: New Orleans Medical Journal, Oct. 1887.

grene. The underlip has been swollen to such a degree that the mouth could not be opened, and milk had to be poured in from above. A slight redness and itching of the part is first noticed, or a sensation of heat; the redness is not always present. The effusion may take place with great rapidity. She often has red spots on various parts of the skin, or irregular lines of redness without any swelling. The duration varies from one to four days. There is not much itching, particularly when the swelling is great, but a sense of distention and stiffness. When fully out it does not pit, but does so when going down. The attacks may come on when she is feeling quite well or there may be slight indisposition. In all the severer ones there is abdominal pain, described as colic, with nausea, and often vomiting. There is sometimes headache; no fever. The attacks have no relation to the menstrual flow. She rarely passes two weeks without an attack. She does not think that food has any influence on her case. She remained in the hospital three weeks, during which time there was no severe attack, but she had numerous wheal-like eruptions on the chest and sides of the thighs, with very slight swelling, and the day before she left there was a large spot of local œdema on the inner aspect of the left thigh. Dr. Morton dilated a very narrow cervix, and she went home much improved. She had not passed three weeks without a severe attack for a long time. I saw her again on January 16th. She had four or five bad attacks on the hands, feet, and thighs, since leaving the hospital.

From Mr. T., my patient's grandfather, a venerable old patriarch of ninety-two, with unimpaired vigor of mind and body, I was able to obtain a tolerably clear history of the affection as it has existed in his family.

FIRST GENERATION.—The disease first appeared in his mother, *Margaret A.*, b. 1762, d. 1834. He thinks it began with her, and feels sure that had it been in her father's or mother's family she would have known of the fact and mentioned it. She was twice married and had two children by the first husband, and three by the second. She had the attacks from an early age in the hands, feet, face, and neck. He had frequently seen her in them, and on one occasion she nearly died in an attack of shortness of breath. She had colic with them. After the age of forty-five or fifty years she was not so much troubled, but her constitution was much weakened by the strong medicines which she had taken. She had evidently, from the account, been badly salivated. She sought advice everywhere, but in vain, and, according to my patient's mother, was brought to Philadelphia, to the Pennsylvania Hospital, to see Dr. Rush or Dr. Physick. She died at the age of seventy-two.

SECOND GENERATION.—Of the children, all boys, four grew up; Samuel, Stacy, John M., and Allan.

Samuel was not affected, but his children have the attacks, and one of them, John, died of the disease in Salem, Mass. Particulars could not be obtained.

Stacy was never attacked.

John M. suffered from his youth, and had frequent attacks on the hands and privates. He has four children living, of whom only one is affected.

Allan, aged ninety-two years, a hale, vigorous man, with perfect faculties, and still able to walk five or six miles a day. He was healthy

as a child. Remembers that the attacks began while he was an apprentice, at the age of eighteen or nineteen. They have recurred at intervals of a month or six weeks. A few years ago they became less frequent. The last attack was two weeks ago. The swelling is usually the first symptom, and in his case the hands and privates are the parts commonly affected, less often the trunk, and never the face. Sometimes itching precedes the onset. The oedema comes on rapidly, and the fingers in an attack are so thick and stiff that it is impossible to move them, the condition lasting some hours, or an entire day. Colicky pains are felt in the abdomen and become so intense that vomiting follows, usually with relief. The ejecta are yellowish, and, as he expressed it, "the bile had to come up before the pain got better." The swelling generally goes down before the sickness. Vomiting is not a constant feature of an attack. The entire duration is from one to three days. He never has headache, and very exceptionally diarrhoea. Very hard work, exposure to cold, and indiscretion in diet were the only circumstances which he thinks determine the attacks, but they as often come on without any apparent cause.

He has been married twice and has had fourteen children, of whom only three, one son by the first marriage and two daughters by the second wife, are affected.

THIRD GENERATION.—*George* began to "swell," as they term it, about the age of twenty and had very many bad attacks. He died, aged sixty, of Bright's disease. Of his nine children all with one exception are affected.

Sallie, married, no children, has very severe attacks in which Dr. Shippo has repeatedly attended her and given hypodermatics of morphia for the colic.

Emma began at the age of ten or twelve. Has attacks every few weeks. Face, hands, and sometimes the feet swell; less often on the body. Has to be very careful in her diet, cannot eat apples and certain vegetables.

FOURTH GENERATION.—*George*, the son of *Allan*, had nine children, of whom eight have been attacked. I am indebted to his widow for the following facts about the affection in this family.

1. *Hamilton*. Always suffered with attacks of cramps in the stomach and of late has very often swollen.

2. *Rebecca* began to "swell" when she was four or five years old, and the attacks became much more frequent after she was married. She had three children, one at seventh month, dead; a second at seventh month and now living (is seventeen and has recently had her first attack); a third at eighth month, living. In each instance the labor was prematurely brought on by the complaint. She died in an attack at 5 A.M., evidently a sudden oedema of the larynx. The late Dr. Van Dyke, of New Brunswick, was called, and before her regular physician, Dr. Williamson, arrived, she was dead.

3. *Almira*, who has never had it.

4. *Mary* has always had the cramps but "swelled" for the first time this winter.

5. *Julia*, "who always has swollen ever since she was a small child."

6. *Kate* has it, but "swells" less frequently than the others.

7. *Edwin* within the past few years has had bad spells of both cramps and swelling.

8. *Maggie* (case of Mrs. H. who came to Infirmary).

9. *George* has always had bad spells of the cramps, and last summer "swelled" for the first time.

The mother writes that none of her children has ever had chilblains, but all suffer with cold feet.

FIFTH GENERATION.—*Lizzie*, daughter of Hamilton, has had some very bad attacks. She was married in February, 1887, and has had six bad spells since. Once her face "swelled out of all shape."

A son of H., also has bad attacks.

A daughter of Rebecca, now seventeen years of age, "swelled" for the first time this winter.

GENEALOGICAL TABLE SHOWING ANGIO-NEUROTIC OEDEMA IN THE FAMILY OF T.

I.	II.	III.	IV.	V.
<i>Margaret</i> , ¹ b. 1762, d. 1834.	Samuel,	{ 3 children all affected; 1 (John) died of it.	One girl affected.	
	Stacy,		<i>Hamilton</i> ,	{ <i>Thomas</i> , <i>Lizzie</i> .
			<i>Rebecca</i> , died of it.	{ 2 children, aged 17 and 11, one of whom has recently had her first at- tack.
	<i>Allan</i> , 10 children, 3 affected,	<i>George</i> ,	<i>Almira</i> , <i>Mary</i> , <i>Julia</i> , <i>Katie</i> , <i>Edward</i> , <i>Maggie</i> , <i>George</i> .	
		<i>Emma</i> , single.		
		<i>Sallie</i> , married; no children.		
	<i>John M.</i>	{ 4 children; 1 (Angey) af- fected.		

The general characters of the œdema may be gathered from the description given of the cases of Mrs. H. and her grandfather. A review of the literature shows that all of the cases in this respect are very similar. In some, the swelling is more constant in one locality, as

¹ Those in italics have suffered with the disease.

eyelid or lip; but, as a rule, various parts are affected. The hands, face, and genitals, are most frequently attacked. Itching, heat, and redness, often precede the outbreak. In many cases the patient also had urticaria.

A special interest pertains to the occurrence of œdema about the throat and larynx, as sudden and extreme involvement of these parts may prove fatal. In Case I. of Quinke¹ and Dinkelaker,² the patient, a man aged twenty-two, had repeated attacks of suffocation, often with cyanosis, in association with local œdema about the joints, and colicky pains. The mucous membrane of the larynx was greatly swollen, and scarification had to be performed. There was no difficulty in swallowing.

In a case of Goltz,³ male, aged thirty, there was œdema of the uvula and pharynx, in association with swelling of sides of arms and scrotum. Laudon⁴ had in his own case swelling of the pharynx. Cuntz⁵ describes a case in which the patient awoke one night with great dyspnoea and a sense of suffocation, which passed off in a few hours.

In one of Riehl's cases the patient had three attacks of angina, with difficulty of swallowing, and great breathlessness. In his second case also, the man is said to have had inflammation of the vocal cords, which had produced symptoms of suffocation.

In several of the cases there was a remarkable regularity in the sequence of the attacks which recurred on the seventh, fourteenth, or twelfth day. In Matas's case, this periodicity was very striking, the attack coming on every day at 11 or 12 A.M.

The hereditary aspect of the disease, which is so well illustrated in the family which I have studied, has been noticed by three observers. In Quinke's⁶ first case the man had two children, one of whom, the son, aged one year, had had, from the age of three months, attacks of local œdema, often preceded by a red and marbled condition of the skin of the breast.

One of Strübing's⁷ cases, a man aged seventy, had a son who suffered with the attacks of œdema.

In Falcone's case,⁸ a lad of seven years, with well-marked attacks, the father had not been affected, but the grandfather had been afflicted in the same way.

The intestinal trouble, which forms so striking a feature of the attack, is of the nature of colic, and is really the most distressing symptom, usually requiring morphia for its relief. It is interesting to note that

¹ Loc. cit.

³ Deutsche med. Wochenschrift, 1880, No. 17.

⁴ Laudon: Berliner klin. Wochenschrift, 1880.

⁶ Loc. cit.

⁷ Loc. cit.

² Loc. cit.

⁵ Archiv der Heilkunde, Bd. xv.

⁸ Loc. cit.

there is a disease in children characterized by painful œdematous swellings about the joints, a purpuric or urticarial eruption, and most intense colic. There may be hemorrhage from the bowels, but the skin affection and the colic are the prominent features. The attacks may be repeated at intervals for many months. Couty¹ has given the only full account of the disease. Henoch² has also reported four cases. I have recently had an opportunity of seeing a typical case of the kind with Dr. Dunton, of Germantown. A boy aged six, has had, during the past ten weeks, three attacks, each one extending over many days, of purpura, with urticaria, swellings about the ankles, and intolerable colic. He has also passed blood in the stools, and the urine contains blood, albumen, and tube casts.

So far as I can gather, none of the members of the T. family has had purpura, nor have there been *painful* swelling of the joints. Some of them have had urticaria, and Mrs. H., while in the Infirmary, had very characteristic wheals on the chest and thighs.

The colic is, in all probability, due to œdema of local regions of the intestinal wall interfering with the regular and uniform progress of peristalsis. The colic of horses is, in most cases, the result of hemorrhagic œdema—infarction—of a limited portion of the intestine, due to embolism in association with the common verminous aneurisms of the mesenteric arteries.

Quinke has termed this condition *angio-neurotic œdema*, and regards it as a vasomotor neurosis, under the influence of which the permeability of the vessels is suddenly increased. That it has close relationship with urticaria, a skin disease of unquestioned neurotic origin, is shown by the frequency with which in the reported cases we find mention of the affection preceding or accompanying the local œdema. The condition resembles in some points urticaria tuberosa, and Juler,³ in a very able article, describes a case of *u. porcellana* which evidently belongs to the affection under discussion. In our present state of ignorance of the factors which regulate transudation, it seems useless to enter upon a theoretical discussion on the subject of nervous œdema, and we may conclude with Cohnheim,⁴ "that we have to do here with clinical facts and observations which urgently call for scientific solution, and that we possess at present but extremely scanty material for an adequate explanation regarding neurotic œdema."

¹ Gazette Hebdomadaire, 1876.

² Henoch : Berliner klin. Wochenschrift, 1874.

³ Cincinnati Lancet and Observer, 1878.

⁴ Allgemeine Pathologie, Bd. 1, p. 500.

CHRONIC PYELITIS,

SUCCESSFULLY TREATED BY KOLPO-URETERO-CYSTOTOMY. IRRIGATION OF THE PELVIS OF THE KIDNEY, AND INTRAVAGINAL DRAINAGE.¹

BY NATHAN BOZEMAN, M.D.,

SURGEON TO THE WOMAN'S HOSPITAL OF THE STATE OF NEW YORK.

(Concluded from page 265.)

I SHALL now present an analysis of the case which I have here reported, and of my previous case of pyelitis treated by the same method.

Etiology.—Chronic pyelitis is rarely idiopathic. The causes which lead to the disease are mainly narrowing of the ureter along its course or at its orifice, the presence of calculi in the pelvis of the kidney, cystitis, and obstruction of the outflow of the urine from the bladder.

Which of these causes was operative in my second case is, unfortunately, largely a subject of conjecture. The patient gave a history of cystitis, and inflammation of the bladder was undoubtedly present at the time when she was under observation. Whether it existed prior to the occurrence of the pyelitis, I do not know. The first symptoms of inflammation of the pelvis of the kidney appeared during pregnancy, and there was a similar history in other cases which I have seen. Whether the pressure of the pregnant uterus or the foetal head, by causing obstruction of the ureter, gave rise to the pyelitis, my experience is too limited to decide definitely; but recently I have treated a case in which dilatation and inflammation of the pelvis, and absorption of the kidney substance resulted from the pressure of a fibrocystic tumor of the uterus upon both ureters. Unfortunately, my attention was not directed to the urinary organs during life. Death occurred on the fifteenth day after I operated for the removal of the tumor, and at the autopsy the lesions of surgical kidney were found on both sides. Retroversion of the uterus in some cases, in consequence of the pressure of the cervix uteri upon the bladder and the formation of a pouch in the vesical wall, occasions cystitis and may also cause obstruction of the lower extremity of one of the ureters. Retroversion and enlargement of the uterus, the result of engorgement of its bloodvessels, were present when I first saw the patient; but parturition had occurred since the first appearance of the symptoms of pyelitis.

The pressure of a peritoneal cicatrix is a cause of obstruction of the ureter in women. No evidence, however, of a previous pelvic inflammation was afforded by the history or by examination through the

¹ Read in substance before the New York State Medical Association, September 27, 1887. The publication of the paper has been delayed until the completion of the treatment of the case.

vagina. Exploration of the ureter, moreover, showed that there was no narrowing of the duct along its course and, although cystitis was present, the thickening of the vesical mucous membrane was not sufficient seriously to obstruct its orifice. A history of the passage of calculi was given by the patient; but these should be regarded as a result of the abnormal condition of the pelvis of the kidney, and not as its cause. They were phosphatic in composition and corresponded in form and size with the calibre of the ureter. The conditions present, as was afterward discovered in the course of the treatment, were favorable for their formation. The pelvis was dilated, the urine which it contained was alkaline, and detritus of blood, pus, and phosphatic salts was frequently washed away. The shape of the calculi indicates that they were formed, in part at least, in the ureter. If, as is probable, they originated in the pelvis, the concretions were then of small size and not sufficiently large to have occasioned by mechanical irritation the extensive inflammation which was present.

Taking all these facts into consideration, it is reasonable to infer that the inflammation of the pelvis of the kidney resulted from more than one cause; the morbid process was probably set up by the presence of the pregnant uterus, and the subsequent uterine displacement and cystitis caused its continuance.

The etiology of the pyelitis in my first case, when it occurred as a complication of a large urinary fistula, is more simple. The orifice of the ureter was contracted to a very small size by the pressure of the cicatricial tissue which formed the upper border of the fistulous opening into the bladder. The obstruction thus afforded to the outflow of the urine from the pelvis of the kidney no doubt gave rise to the disease.

Symptoms. — The subjective symptoms of chronic pyelitis are not always distinctive, and are frequently obscured by those of the cystitis with which the disease is commonly associated. This is especially true when cystitis, and at a later period pyelitis, follow obstruction of the flow of urine from the bladder. Dilatation of the ureter and pelvis of the kidney on both sides, and serious renal lesions occur in these cases so gradually as to occasion but little disturbance of sensation. No change in the symptoms or in the condition of the patient, except, perhaps, a more rapid depreciation of the general health, may, therefore, be observed to indicate the extension of the inflammation from the bladder to the upper urinary passages.

When, however, as more frequently happens in the female, the obstruction occurs along the course of the ureter or at its orifice, the resulting pyelitis is unilateral, the dilatation of the pelvis more rapid, and cystitis a less prominent feature; besides the cachexia of chronic suppuration, nausea and vomiting may then occur and a characteristic pain is more frequently felt in the lumbar region. When, in addition, as hap-

pened in both of my cases, the presence of pus and ammoniacal urine in the pelvis of the kidney lead to the formation of phosphatic concretions, well-marked symptoms are produced. Attacks of renal colic occur from time to time and calculi are voided with the urine. During the temporary impaction of a calculus in the ureter, fetid pus and ammoniacal urine are pent up in the pelvis of the kidney. Septicæmia follows. Repeated rigors, high temperature, persistent nausea and vomiting, and great prostration resulted from this cause in my first case. In my second, these symptoms were not present while the patient was under observation, but she gave a clear history of a similar attack.

Urinary changes.—Pus, bacteria, and amorphous and crystalline phosphatic salts of lime were found in the urine in considerable quantity in both, and persistent hæmaturia was a marked feature of the second case. The difference in reaction of the mixed urine and that obtained directly from the pelvis of the kidney on the affected side, also observed in my second case, is interesting. The former was commonly acid, the latter alkaline. In the mixed urine, the acidity of the excretion of the kidney on the healthy side more than neutralized the alkalinity of the other. Characteristic cells from the pelvis of the kidney were not found; this was no doubt due to the solvent action of the ammoniacal urine.

Course and termination.—The natural course of a chronic inflammation of the pelvis of the kidney is to increase in gravity and extent, and to lead to disease of the kidney. The tubular structure forming the Malpighian pyramids may be to a greater or less extent absorbed in consequence of the increased pressure of urine in the dilated pelvis, and the function of the cortical portion gradually impaired as the result of a chronic interstitial nephritis. Complete obstruction of the ureter may occur and give rise to pyonephrosis, or the inflammation extending to the renal parenchyma result in acute or chronic suppuration in the kidney.

In my first case, when treatment was begun, renal calculi were being formed and discharged at frequent intervals; rigors were often repeated and the temperature was constantly high. The patient was evidently rapidly dying from septicæmia resulting from the absorption of pus confined in the pelvis of the kidney. After the pus was removed by irrigation and the obstruction at the orifice of the ureter overcome by dilatation and incision, the inflammation of the pelvis subsided; but the injury, the result of pressure and the pyelitis, sustained by the kidney on the affected side was indicated by the diminished quantity of urine excreted and the small percentage of urea which it contained.

In my second case the disease was running a more protracted course; but the patient was suffering almost constant pain and was greatly enfeebled by the long-continued suppuration and hæmaturia. The pelvis of the kidney was already considerably dilated and the presence of alka-

line and putrescent urine in the calices of the kidney was liable at any time to occasion suppurative nephritis.

The formation of phosphatic calculi in both cases as the result of pyelitis illustrates the causative relation of the disease to pyonephrosis. The passage of the calculi through the ureter was difficult and accompanied by paroxysms of renal colic. At any time, this temporary obstruction of the ureter might have become permanent and given rise to pyonephrosis.

Diagnosis.—The presence of pus in the urine in considerable quantity, when its origin can be traced directly to the pelvis of the kidney, is alone sufficient to establish the diagnosis of pyelitis; but the exact determination of its source is necessary, because it may proceed from the mucous membrane of the bladder. The formation of pus may be due to cystitis alone, or the inflammation of the bladder, as frequently happens, is associated with the pyelitis. When cystitis is excluded or its association with pyelitis is ascertained, accurate diagnosis requires that the extent and exact location of the latter disease should be determined, because one pelvis may be inflamed and the other healthy, or both may be involved. It is also important to detect the presence of calculi in the pelvis, to ascertain the existence of stenosis or obstruction of the ureter at its orifice or along its course, and to measure the extent of the injury sustained by the renal parenchyma.

In my first case the diagnosis was not difficult. The symptoms were well marked and characteristic. When my attention was directed by them to the investigation of the condition of the upper urinary passages, the orifice of the left ureter was discovered in a mass of inodular tissue situated around the corresponding angle of the fistula and fetid pus was seen exuding from it. Having demonstrated thirty years before and many times since, the facility with which the ureter can be explored when its orifice is exposed by a fistulous opening, I did not hesitate to pass a catheter into the pelvis of the kidney. When, in my second case, an opening had been made in the base of the bladder, all difficulty in the diagnosis and doubt concerning the nature of the lesions present also vanished. I was not only enabled to determine the presence of cystitis, but to estimate its extent by observing the amount of the thickening of the vesical wall. The origin of the pus and blood was demonstrated by visual inspection and specimens of urine from the diseased pelvis were collected by catheterization of the ureter. The capacity of the organ was measured by filling it with water and in this way the extent of the dilatation of the pelvis was determined. The urine from each kidney was collected simultaneously and in separate vessels. The quantity secreted by each in a given time thus became a measure of its functional activity and the extent of the injury sustained

by the kidney on the affected side was estimated. The use of the catheter in my first case demonstrated the narrowing of the orifice of the ureter and the existence of obstruction at different points along its course. In my second case the employment of my renal sound, an instrument better adapted to diagnostic purposes, showed that no foreign body was present in the pelvis of the kidney. In a word, all the requirements of accurate diagnosis set forth at the outset were satisfied.

Treatment.—The most important feature in the treatment of my two cases of pyelitis is the demonstration of the possibility of applying local measures to the treatment and cure of a grave disease of an organ situated in the interior of the body and communicating with the bladder only by a narrow and winding canal twelve inches long. I have shown that this is not only possible but easy. When the orifice of the ureter has been exposed by kolpo-uretero-cystotomy, which is not a dangerous operation, irrigation of the pelvis of the kidney is scarcely more difficult than washing out the bladder. It is almost painless. I have frequently irrigated the pelvis of the kidney in my private office and the patient walked home without inconvenience or evil consequences.

Almost equally important is the demonstration of the tolerance evinced by the ureter in respect to these surgical procedures. In my first case I left the catheter in the ureter and pelvis of the kidney twenty-four hours and it caused no pain or evil results whatsoever. The continued presence of the instrument in my second case, it will be remembered, gave rise to pain, nausea, and vomiting, but was followed by no serious or permanent consequences. Although these observations were important, in the treatment of diseases of the pelvis of the kidney it is unnecessary, and, therefore, unwise, to put the tolerance of the ureter to so extreme a test. It is sufficient to introduce the catheter and to remove it after the irrigation is finished. When this was done, not even the slight disturbance of function, above described, was occasioned.

Irrigation of the pelvis of the kidney in pyelitis as a therapeutic measure rests upon the basis of the rational treatment of disease. By it, pus, blood, ammoniacal urine, and calcareous deposits are removed. Dilatation of the ureter also allows the free escape of these irritating substances and prevents their accumulation. When complete obstruction of the ureter has occurred in consequence of the impaction of a stone, the gradual dilatation of the duct below the seat of the obstruction by the passage of larger and larger catheters would favor the descent of the calculus. If contraction of the orifice exists, as in my first case, it can be overcome by dilatation and incision of the vesical extremity of the ureter.

For the treatment of chronic inflammation of the bladder, kolpo-

nretero-cystotomy is as efficient as the operation of kolpo-cystotomy.¹ An opening at one of the nreteral angles of the trigone of the bladder drains its cavity as perfectly as one in the median line. The cystitis so commonly associated with pyelitis both as a cause and a complication, is by this means radically treated. Perfect drainage of the bladder, by removing pus and ammoniacal urine from contact with the vesical mucous membrane, allows the inflammation to subside and physiological rest of the organ brings atrophy of its thickened muscular and mucous coats.

A similar, but less obvious, result of the opening in the bladder is that by it physiological rest and perfect drainage of the ureters and pelves are also secured. Normally, when the bladder fills, the urine contained in its cavity exerts a pressure in every direction upon the vesical walls, varying in amount with the degree of distention of the organ. Continuous tension and reflux of urine into the pelves of the kidneys are prevented by the valvular arrangement of the lower extremities of the ureters and vesical mucous membrane; but in order to allow the flow of the urine into the bladder under these circumstances, the tension of the contents of the ureters and pelves must, at least, momentarily exceed that of the bladder. The pelvis of the kidney fills from time to time and by muscular contraction injects its contents into the already more or less distended bladder.

By the operation of kolpo-nretero-cystotomy the physiological relations of the upper urinary passages to the bladder are changed. The bladder being always empty, no obstacle to the flow of the urine from the ureters is afforded by the normal periodical distention of the organ. In the report of my second case, it will be remembered, the quantity of urine retained in the pelvis of the kidney depended upon the position of the body previous to the passage of the catheter. If the patient had been standing or sitting before the instrument was introduced, little or no urine was drained off; if she had been lying down, a considerable

¹ Perineo-cystotomy was first proposed by Guthrie for the cure of cystitis, and, in 1850, the operation was performed in this country by Dr. Willard Parker, in order, as he said, "to open a channel by which the urine could be drained off as fast as secreted and thus afford rest to the bladder, the first essential indication in the treatment of inflammation" (New York Medical Journal, vol. vi., 1851). This was all that I knew concerning this method of treatment in the male, and nothing had been done in the female, when in January, 1861, I did the operation of kolpo-cystotomy. I made an opening about the size of half a dollar in the vesico-vaginal septum for the cure of cystitis, ulceration of the vesical mucous membrane, and concentric hypertrophy of the bladder. In consequence of the great thickening of the vesico-vaginal septum, the opening contracted to such a small size as to prevent drainage. It was, therefore, enlarged to nearly the size of a silver dollar. A permanent fistula was thus produced by this second operation. At the end of about fourteen months, when the thickness of the base of the bladder had diminished from three-quarters to about one-quarter of an inch, and the cystitis and ulceration had disappeared, the opening was closed. The cure was permanent. I was practising in New Orleans at this time, and, owing to the continuance of the Civil War and the suspension of all the medical journals of the South, the case could not be published. It, together with others, was, however, at length reported in 1871. (Urethrocele, Catarrh and Ulceration of the Bladder in Females. Trans. New York State Medical Society, 1871.)

quantity was removed. It follows from these observations that, provided there is no obstruction in the duct itself, when the orifice of the ureter is exposed and the bladder drained, no obstacle is afforded to the flow of the urine from the pelvis of the kidney; in the upright position the organ is perfectly drained in obedience to the law of gravitation.

From physiological rest and drainage of the pelvis of the kidney, therefore, results analogous to those obtained by the same means in disease of the bladder may be expected to follow. Pus and ammoniacal urine are rapidly removed, and their prolonged contact with the mucous membrane prevented. The thickened lining membrane and muscular coat will atrophy from disuse, and the dilated cavity of the pelvis shrink to a normal size when the pressure of the urine is removed.

The use of intravaginal drainage constituted an essential part of the treatment. In my second case, the contact of the urine with the vagina and integument, in the enfeebled condition of the patient, might have led to disastrous results. Vaginitis would have been occasioned, and, owing to the impossibility of keeping the skin and bedclothes free from urine, ulceration of the buttocks, or even sloughing of the integument over the sacrum might have been produced. Freedom from these complications and the pain and mental distress which are caused by incontinence of urine was no doubt of great importance, and contributed much toward the rapidity of the recovery of the patient and the success of the treatment.

After the suppuration of the lining membrane of the pelvis of the kidney had ceased, and the symptoms subsided, the drainage instrument was still indispensable. During the time the opening has been [was] left open in order to secure the advantages of physiological rest and drainage of the whole urinary system, the patient has been free from the evils of incontinence of urine. As her letter shows, she has been enabled by the use of the drainage support to perform her daily duties and enjoy the pleasures of life.

The analysis of my two cases of pyelitis is now completed. In conclusion, I submit the following summary of what I conceive to be the most important results which follow the employment of this new method of treatment.

1. An artificial fistula at one of the ureteral angles of the trigone of the bladder, the result of the operation of kolpo-uretero-cystotomy, furnishes an opportunity for the observation and clinical study of disease of the bladder, ureters, pelves, and kidneys, afforded by no other means. Specimens of the urine have been obtained from the ureters by catheterization through the urethra; but the information to be obtained by this means is necessarily limited, and the procedure is open to various objec-

tions. The practice of forcibly dilating the urethra in order to facilitate the catheterization is unjustifiable, because it frequently results in incontinence of urine. Catheterization without dilatation of the urethra—"free handed," as it has been called—is a very difficult operation. I have made repeated attempts within the last few years to perform this surgical feat, but they were all failures. This method also involves an amount of probing which is injurious to the bladder, especially if cystitis is already present. It will be remembered that in the case reported my two attempts to pass a catheter into the ureter were each followed by an exacerbation of the chronic inflammation of the bladder. In order to be certain of the source of the pus, especially if it is present only in moderate quantity, the catheter must be passed along the whole length of the ureter to or into the pelvis of the kidney; otherwise it may come from the ureter, and ureteritis at the vesical portion of the duct is, I believe, a very frequent complication of cystitis. In consequence of the spiral course of the ureter (see Fig. 3), only a very flexible instrument can be safely passed into the pelvis of the kidney; and in order to discover the ureteral orifice by probing the bladder, a moderately stiff catheter must be employed. When an opening in the bladder has been made, the orifice of the ureter can be exposed to view, and the most flexible instrument guided into it.

2. The means of easy access to the bladder, ureter, and pelvis of the kidney, afforded by the operation of kolpo-uretero-cystotomy, are even more important for treatment than diagnosis. Irrigation of the pelvis of the kidney removes pus and ammoniacal urine from contact with its mucous membrane. Gradual dilatation of the ureter overcomes narrowing of the duct at its orifice or along its course; the escape of irritant substances from the pelvis is thus made more easy, and the descent of a calculus impacted in the ureter would be facilitated. Physiological rest and perfect drainage of the bladder, ureters, and pelvis, tend to cause the subsidence of inflammation of their lining membrane, and atrophy of their thickened muscular coats. In consequence of the removal of the pressure of the urine, an enlarged bladder or a dilated pelvis returns to its normal size.

3. By this new method of treatment, the patient is exposed to but little danger in comparison to that involved in the grave operations of nephrotomy and nephrectomy. These major operations are seldom done except at a late period, when extensive renal disease has occurred, and, if the case does not terminate fatally, result in the partial or complete loss of one of two vital organs. The complicating cystitis is not treated by them, and causes which may afterward lead to disease of the remaining kidney are neglected. Congenital absence of one kidney, coincident disease of both, and pyelitis on both sides, are contraindications to the performance of the operation of nephrectomy, but not to the employ-

ment of this new method of treatment. Kolpo-uretero-cystotomy should be done early. By the operation, and the subsequent treatment, the associated lesions of the bladder will be cured, and in many cases all the urinary organs restored to a normal condition. In other cases, by the accurate means of diagnosis afforded by the opening in the bladder, allowing the use of the catheter and renal sound, a stone in the pelvis of the kidney too large to pass through the ureter, extensive suppuration of the kidney itself, or some other condition not susceptible of cure by this method of treatment, may be discovered. Nephrotomy or nephrectomy may then be resorted to with greater confidence, and an increased probability of success. The patient is meanwhile relieved from the distress resulting from the complicating cystitis and pyelitis. The vesical and pelvic irritability and tenesmus no longer causing loss of sleep, her general condition can be improved, and she is better prepared to undergo a serious operation.

4. Intravaginal drainage prevents the evil consequences of incontinence of urine, and perfects the method by removing the chief objection to its employment.

POTT'S FRACTURE.

A COMPARATIVE STUDY.

BY J. BLAND SUTTON, F.R.C.S.,

HUNTERIAN PROFESSOR IN THE ROYAL COLLEGE OF SURGEONS, ASSISTANT SURGEON TO
THE MIDDLESEX HOSPITAL.

PROBABLY no fracture of the bones of the lower limb is so common as that which goes by the name of Pott's fracture, excepting, perhaps, fracture of the neck of the femur. The essential features of a Pott's fracture are the following: The fibula is broken about three inches above the ankle, the tibial malleolus is splintered off, or the deltoid ligament ruptured, and the foot everted. The most frequent cause of this very common accident is a sudden and violent twist of the foot.

It is the object of this paper to show that other causes than those of civilization are responsible for this remarkable predisposition of the fibula to break at this spot.

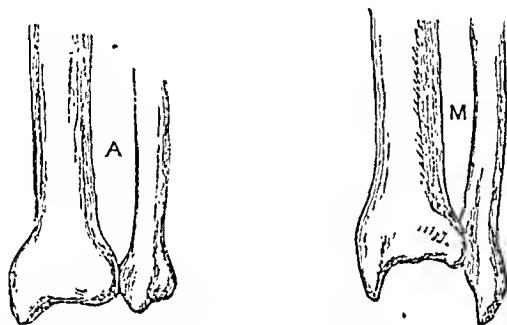
If man's malleoli be compared with those of other mammals, we shall find that he differs from them in the fact that his external, or fibular malleolus, descends much below the internal or tibial malleolus. Even in those mammals which so closely approach him in anatomical characters, the anthromorpha (Gibbon, orang, gorilla, and chimpanzee), the tibial and fibular malleoli descend to the same level. As far as I know, the malleoli of no other mammal approach even this condition, the rule

is for the tibial malleolus to be the lower. In the accompanying sketch the distal ends of the tibia and fibula of a man and a chimpanzee are introduced for comparison. (Fig. 1.)

In the *Morphologische Jahrbuch* (August, 1886) Gegenbauer published the following interesting observations:

In the human fœtus during the fifth month of intrauterine life, the tibial is more prominent than the fibular malleolus. In the seventh month the two are of equal length; from this date onward the fibular exceeds the tibial malleolus. Thus the primitive condition agrees with that in apes, where the fibular never exceeds the tibial malleolus. In man the preponderance of the fibular malleolus gives greater firmness to the ankle-joint, and has probably been acquired with the assumption of the erect posture.

FIG. 1.



A. The malleoli of a chimpanzee. M. The distal end of the tibia and fibula of man.

As far as I am aware, no one has ever described an example of Pott's fracture in a monkey, or, indeed, in any mammal save man. Fractures of other bones, and of the fibula and tibia, have come under my notice many times in quadrumana, but I have never yet seen anything in them resembling a Pott's. Hence we may assume that Pott's fracture is peculiar to the human kind, and occurs as a direct result of the extraordinary length of the fibular malleolus, in that it affords excessive leverage when the foot is suddenly and violently twisted laterally; the force applied to the distal end causing the fibula to snap at some point in its lower fourth.

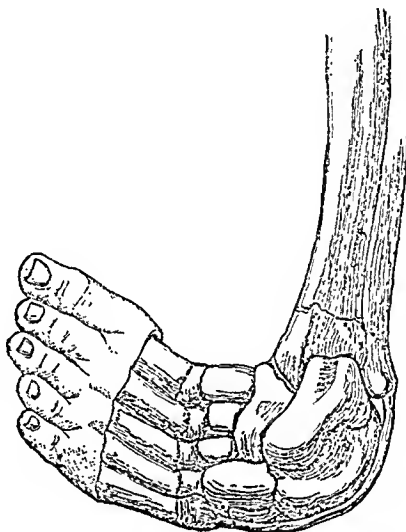
This inquiry when pushed further leads to other facts of interest. Parker and Shattuck, in their invaluable research on talipes equinovarus (*Path. Trans.*, vol. xxxv.), have described the agreement which exists in the obliquity of the neck of the astragalus and the extension of the inner facet of that bone on to the neck in the anthropomorpha (especially the orang), in the human fœtus at birth, and in the astragalus from cases of talipes equinovarus. In the orang the foot is naturally in the position of varus. This is true of the fœtus during a portion of its intrauterine existence. If, from any cause, the foot persists in this

position, varus is the result. Hence talipes equino-varus is to be regarded as a persistent foetal condition when congenital.

As further evidence in support of this view the following fact is of value:

In congenital talipes equino-varus not only the astragalus retains its foetal and simian type, but the malleoli also, for on examining several specimens of this deformity, the tibial and fibular malleoli were found to be on the same level. In Fig. 2, taken from a dissection, this relation of the parts is well shown.

FIG. 2.



The foot and ankle-joint of a human foetus with congenital talipes equino-varus. It is intended to show that the malleoli are of equal length in this deformity

From an evolutionist's point of view these facts are extremely interesting and very suggestive, for, during development the malleoli of man in their relation to the astragalus, and in length, present temporarily relations and configurations which are permanent features in mammals closely allied to him; but in the greater length of the adult fibular malleolus we have a condition absolutely human, and possibly one of the direct results of the assumption of the erect posture. I say positively, for this reason, it is quite as probable that an elongation of the fibular malleolus may have played a part in *enabling* man to assume and maintain an erect position. Should any person doubt the advantage of this elongation of the outer malleolus in fixing the tarsus firmly whilst standing, and especially in walking, he need only study the ungainly *wobbling* gait of an orang on its hind limbs, to have all doubts immediately set at rest.

It is also equally certain that whatever advantage is gained by this extra length of the fibular malleolus, it is accompanied by the great inconvenience of predisposing man to the occasional occurrence of Pott's fracture.

REVIEWS.

THE OPERATIVE SURGERY OF MALIGNANT DISEASE. By HENRY L. BUTLIN, F.R.C.S., Assistant Surgeon and Demonstrator of Surgery, St. Bartholomew's Hospital; Late Erasmus Wilson Professor of Pathology to the Royal College of Surgeons. 8vo. pp. viii., 408. Philadelphia: P. Blakiston, Son & Co.

It was time this book was written. The last twenty years have been years of great change in all that pertains to the science of surgery. With the change there has been also marked and notable progress made. But all the changes have not been improvements, and amid the revolutionary upheavals which living surgeons have witnessed, there have come to the surface certain procedures and a variety of propositions which cannot be expected to survive by any inherent excellence of their own. Time and experience will surely separate that which is valuable from that which is useless, but a careful weighing of the evidence at present obtainable, must be advantageous, and especially must this be the case when the work of judgment is done by one whose writings and whose experience so fully entitle him to the confidence of the profession as Mr. Butlin.

Following on in the line of his previous studies Mr. Butlin has set to himself the task of examining into the treatment at present adopted in cases of malignant disease, and of testing that treatment by the results obtained. There is some danger lest in the great advances made in the treatment of operations, the nature of the disease making operative interference necessary may be lost sight of and operations done which, from the nature of the case, are well nigh desperate. Time was when surgeons always kept in mind the liability of malignant diseases to return, and that liability was added to the risks of the proposed operation in estimating the propriety of its performance, but the comparative impunity with which operations can now be done has led some, altogether and unwisely, to exclude from the equation all reference to this question. One result of this neglect, and the futile operations it has led to, may easily be a disinclination of many to avail themselves of the benefits of proper operations, benefits which, we believe, have become increasingly apparent with passing years.

To estimate properly the wisdom of surgical interference in a given case, not only must the history and progress of that case be examined, but the prognosis given will be largely influenced by its seat—as experience shows that great variations of malignancy exist in different parts of the body when invaded by the same kind of cancer. Therefore, Mr. Butlin studies in succession the different parts of the body as affected by the invasion of malignant disease, and the arrangement of his book is topographical.

In his introduction of some thirty pages are laid down what may be regarded as the general principles which should guide us in arriving at a conclusion, and certain rules of practice formulated. We propose to give to our readers a somewhat detailed account of these conclusions and rules.

Accounting for the sometimes brilliant result which follows a long deferred operation Mr. Butlin says, "When long duration of a malignant tumor is associated with very slow progress, small size, absence of serious adhesions, absence of affection of the neighboring lymphatic glands and of secondary growths, so much the more favorable is the prospect of permanent relief from operation for its removal." The reason for this is that such cases are examples of a slowly growing disease, with less than usual proneness to extend by forming adhesions. But that such cases do occur should not blind us to the fact that they are exceptional, not to be looked for, and they in no way impair the force of the fundamental rule, "that the earlier a cancer is removed so much the more likely is the operation to be permanently successful."

That so many cases only present themselves when the disease has made extensive progress, Mr. Butlin thinks is more generally the fault of patients than of their medical advisers, owing to the natural dread of operative interference on the part of the sufferers. This reluctance it may reasonably be hoped will be in some measure lessened by the improved results obtained of late years, and the shorter and less painful after-treatment involved in modern antiseptic methods. On the other hand, Mr. Butlin thinks that there is need of caution lest these better results lead surgeons into doing more extensive operations than are really necessary, and undertaking some to which there belongs but little hope of any permanent good, and which involve very great risk to the patient.

Our author does not believe that the presence of cancer in an organ necessarily calls for the removal of the entire organ, while he favors cutting far beyond the confines of the disease. This matter is particularly discussed in the chapters on the Uterus and Breast, and in the latter especially he places himself in antagonism to the teaching of Prof. S. W. Gross, but he does so with admirable temper and sustains his position by many cogent arguments. Mr. Butlin is also opposed to exploratory operations for the removal of contiguous glands unless they are manifestly diseased. He refers to the well-known fact that not infrequently glands which were suspiciously enlarged decrease in size after the removal of the primary growth. He further comments upon the fact that Gussenbauer's detection of microscopic evidences in glands adjacent to a cancer of the lip, in twenty-nine out of thirty-two cases, is not in accord with the observation that in a large proportion of such cases (about fifty per cent.) a removal of the original growth is followed by no recurrence *in situ* and no outbreak in the neighboring glands.

In unmeasured terms Mr. Butlin condemns the modern operations for malignant disease of the pylorus, kidney, thyroid, larynx, œsophagus, and the entire body of the uterus; and he shows that not only is the mortality from these operations very great, but that as yet the results, so far as permanent cures are concerned, have been nil. His researches have led him to the conclusion that generally "the larger and more dangerous to life an operation, so much the less likely is it to be permanently successful."

Neither is our author favorable to those last-chance, or rather no-chance operations, undertaken at the solicitation of patients or friends long after all hope of a successful issue is past. He favors sound surgery rather than that which is sentimental, and is of the opinion that were surgeons to follow the example of some "cancer-curer" and select their cases more rigidly, there would follow such an improvement in our statistics as would encourage sufferers from malignant disease to submit themselves for operation at an earlier, and, therefore, more hopeful day.

In the book before us only the question of curative operations is considered, no reference being made to those which are palliative or reparative. Each chapter deals with a distinct part and is systematically arranged, a brief history of the course of the disease with only the absolutely necessary pathological distinctions being first given. The best and most approved methods of operating are then described, and where the operation has been originated by, or is in any way identified with an individual surgeon, full credit is given to him, and, as far as practicable, his description of the procedure is followed.

But no one will turn to this work as an operative manual, or as a pathological treatise. It is with the results of operation that the book deals, and the statistics it contains upon which we must depend to arrive at a conclusion, as regards the results, give to it its special value. These statistics are the latest obtainable and are most carefully analyzed. Mr. Butlin discriminates between the results obtained before the development of antiseptic surgery, and those recorded since, and thinks he sees a manifest improvement for the latter period, and in the formulation of his estimates this point is kept in view.

The question of recurrence is the all-important one, and in common with other writers Mr. Butlin adopts the three year rule, holding that until that time has passed no assurance can be had that the growth will not return. When recurrence takes place at a later day, it is ingeniously argued whether we should not look upon cancer as we do upon pneumonia, and regard the return as a second attack of the disease rather than as an outbreak of the original malady.

The percentage of mortality is calculated upon the number of deaths following a given number of operations; while that of cures is based upon the number of cases alive and well three years after operation, or who have died from other causes after the lapse of that period of time, compared with the total number of cases. Mr. Butlin believes that a better showing would be made were cases kept in view for a longer time, as his experience teaches him that very many will be entirely uninfluenced by gratitude, and will not be at the pains to report themselves so long as they are getting on comfortably. Our own experience coincides with his in a great measure, and he most appositely refers to the case recorded in a very old book, when but ten per cent. of the cures reported themselves to Him who exerted a power over leprosy which is not exercised to-day.

We are unable to follow Mr. Butlin beyond these few introductory pages, and must refer our readers to the book itself, for further and detailed information. In successive chapters sarcomas and carcinomas are carefully studied as they affect the different tissues and the various organs—and the work is done both elaborately and thoroughly. Every effort has been made to present the subject clearly and without prejudice, for, while our author possesses positive convictions of his own, he

does not condemn those of others without careful consideration, and a fair presentation of both sides of the case.

The consequence is that the book is one no practical surgeon can afford to neglect, but which he will consult as containing the best and most recent judgment concerning a class of cases sadly on the increase, yet which the progress of surgery does not leave altogether without hope. Indeed, this book furnishes invaluable data by which to establish those limitations which, at the same time, help to place our expectations upon a surer foundation of reasonable hope. We have read every word it contains, and would urge our readers, in this respect at least, to follow our example.

S. A.

THE PRACTICE OF MEDICINE AND SURGERY, APPLIED TO THE DISEASES AND ACCIDENTS INCIDENT TO WOMEN. By W. H. BYFORD, A.M., M.D., Professor of Gynecology in Rush Medical College, and of Obstetrics in the Woman's Medical College, etc., and HENRY T. BYFORD, M.D., Surgeon to the Woman's Hospital of Chicago, etc. Fourth edition, revised, rewritten, and very much enlarged, with three hundred and six illustrations. Pp. xxiii., 820. Philadelphia: P. Blakiston, Son & Co., 1888.

As stated in the preface, this valuable work has received such additions as render it fully abreast of the times. It is unnecessary to say that the fresh matter bears the same stamp of originality which characterized the first edition. In the introductory chapter on anatomy, the author reverses the usual order, devoting most of the space to a description of the pelvic roof and floor. This plan may suit the advanced student, but it must certainly be somewhat confusing to the beginner to follow the writer as he skips from the ovaries to the ureters, next to the vagina, then back to the pelvic floor, while the rectum, bladder, and pelvic nerves and vessels come last. It is difficult to discover the method of this unusual sequence. The description of the pelvic connective tissue is rendered confusing through the same lack of order in considering its distribution. The absence of any description of the Fallopian tubes is not less surprising than is the omission of the uterus and its relations. The round ligaments are included among the muscles of the pelvic roof (!). On page 28 we read that the vagina is "attached posteriorly to the cervix and the *sacro-uterine ligaments* (!). Why "*sacro-uterine*," if the latter are attached to the vagina? This statement is not supported by the accompanying figure (13), which, by the way, is rather obscure. The perineum receives the attention which its importance warrants, but it is apt to confuse the general reader to describe the perineum and the perineal body as if they were separate entities. The section on the rectum is full and satisfactory, three pages being devoted to it, but the bladder, an equally important organ, is dismissed in a few lines.

Chapters II. and III., on examination, are unusually exhaustive; in fact, they surpass, in this respect, any text-book in the language. The reader would infer from the minute directions for palpating the normal ovaries that nothing was easier than to feel these organs; as a matter of fact, men of the largest experience acknowledge that they have succeeded in detecting them only under the most favorable conditions, the patient

being under the influence of an anæsthetic. The palpation of the ovarian, infundibulo-pelvic, and round ligaments is certainly a curious rather than an important procedure, which can only interest the expert. The devotion of eight pages to minute details regarding the method of palpating these cords and the normal Fallopian tubes and ureters only tends to complicate a subject which is already sufficiently difficult. When we find two additional pages on the palpation of the pubo-vesico-uterine ligament, and nearly an entire chapter on palpation of the pelvic muscles, arteries, and nerves, we are tempted to ask "Is this a practical treatise on diseases of women, or a monograph for the special reader?"

Chapter IV., on instruments, is good, although some of the cuts are rather antiquated, Fig. 85 being a perfect representation of what Sims's speculum should *not* be. We would hesitate before placing the hytrometer (Fig. 74) in the hands of the "inexperienced," and would question the "valuable information" obtained by its use. Fig. 92 hardly "holds a mirror up to Nature." Among urethral endoscopes, Grünfeld's ought to be mentioned as being by far the best.

In Chapters V. and VI., on diseases of the external genitals, we note the omission of any reference to lupus of the vulva, the extreme brevity of the paragraph on cancer, and the statement (page 157) that urethral caruncles sometimes "seem to be a hypertrophied fold of the mucous membrane." This might mislead the reader; it cannot be too strongly emphasized that true urethral caruncle is as rare as prolapse of the urethral mucosa is common.

Chapter VII., on laceration of the perineum and pelvic floor, comprises upward of sixty pages, and presents an exhaustive and scientific view of the subject. Never has it received more careful study and original investigation. While it is too elaborate to fulfil successfully the purpose of the author as expressed in the preface—"of enabling the young practitioner to treat these accidents with discriminating intelligence"—for the reader who is already familiar with this difficult question it contains a veritable fund of information. The hieroglyphics on pages 175 and 176 are quite appalling, and the reader must admit that the author's apology for the introduction of twenty-three separate varieties of perineal laceration is quite *apropos*. The anatomy of the deeper injuries to the pelvic floor is described as confidently as if the writer had confirmed his statements by actual dissection; positive anatomical facts are much needed to support such dicta. The paragraphs on the prevention of laceration are very interesting and instructive, but we question if there is really any method of avoiding the concealed injuries described in the foregoing pages; perineal incision certainly does not offer complete protection. The remarks on the immediate operation are exceedingly apt. From personal experience we cannot agree entirely with the author regarding the prognosis after immediate closure of the torn sphincter. While it is undoubtedly true that no single operation is applicable to the repair of all perineal tears, a very condensed description of a dozen different operations is hardly to be commended. The quilled suture is certainly "somewhat antiquated," and has few friends in this country. The incision of the sphincter ani (as described on page 221), in order to relieve traction after the operation for complete laceration, is a useful suggestion.

Chapter VIII., on diseases of the bladder, is brief and less satisfactory

than the one which follows, on affections of the vagina. Strangely enough the urethra receives no attention, although the last edition of Dr. Emmet's book contains a separate chapter on diseases of this canal. Urinary fistula belongs more properly under affections of the urinary tract, instead of being included in the chapter on the vagina. The operation of dilatation of the urethra in order to relieve irritation of the bladder (page 230) will hardly commend itself to the conservative gynecologist except as an extreme measure. The dangers incurred in extracting a calculus through the urethra have been clearly pointed out by Dr. Emmet. The author admits that laceration may result. Why then practise such extraction at all?

Chapters X. to XII. inclusive, on menstruation and its disorders, are full and satisfactory. We wish that the writer had pointed out more forcibly the positive dangers of posterior section, a procedure that has been followed by more permanent ill-effects than any other minor operation in gynecology.

Chapter XIV., on the menopause, is brief and disappointing. It is surprising that this fruitful subject does not receive more attention in general treatises on gynecology, instead of being relegated to monographs.

The next ten chapters are devoted to the thorough discussion of uterine disease. Space forbids us to consider these *in extenso*. They vary in length and merit, the first two being very brief. Chapter XVII. considers the reflex symptoms of hysteropathy, much of it being so general in its bearing that it might properly have formed an introduction to the whole work. Many of the pains described are certainly referable to other than uterine affections. In Chapter XVIII. the author introduces a separate essay on uterine pathology, in which he inclines to Dr. Emmet's theory of hyperæmia. Here again, there is a noticeable absence of any reference to anatomical facts.

Two chapters on acute and chronic perimetritis follow. Not to dwell upon this much-vexed theme, it should be mentioned that, after stating at the outset that he adopts the term "perimetritis" "to signify inflammation of the tissues surrounding the uterus, and includes both cellulitis and local peritonitis under this head," the author at once starts out to describe cellulitis as a separate affection, having its own distinct pathology and symptoms. We thought that the question of the relative frequency of localized peritonitis had been settled, and that the extension of inflammation through the tubes was regarded as *the* cause of peritonitis.

The subject of displacements is admirably treated in chapters XXVIII. to XXXIII., inclusive. We note only a few minor blemishes. The unsightly instrument known as Zwank's pessary is figured on page 507, where it is stated that it is "often a convenient makeshift." It must be a last resort indeed! Shall we not live to see the time when anteversion pessaries will be banished from text-books, or mentioned only as curiosities, unscientific in principle and mode of action? What more can be accomplished by one of these instruments than by an ordinary retroversion pessary that elevates the entire uterus to its proper plane? The method of breaking up adhesions behind the retroflexed uterus, by opening Douglas's pouch and attacking them directly, is bold and ingenious, but hardly commends itself to the surgeon in view of the results that have followed vaginal oöphorectomy. In each of the four instances in

which he performed this operation, the author was obliged to remove the tubes and ovaries. "In the last two cases," he adds, "I held the uterus in place by vaginal tampons, and thus cured (?) the displacements." What advantage this method possesses over laparotomy it is difficult to see. An equally heroic procedure is shortening of the utero-sacral ligaments for the cure of retroversion, by passing stitches into them through the posterior fornix. This operation is conducted entirely in the dark, and must require consummate skill for its successful performance. The author naïvely comments: "Possible dangers might arise from breaking the needle, or losing track of the point and puncturing the intestines or bloodvessels, or from carelessly operating upon a ligament surrounded by inflammation or induration." To the ordinary mind these dangers will appear as not only possible, but almost inevitable. The description of the Alexander-Adams operation is good; the author does not seem to regard it with the greatest enthusiasm.

Vaginal hysterectomy is carefully described. The subject of fibrous tumors of the uterus is treated in a manner that leaves little to be desired, Apostoli's method of applying electricity receiving due notice.

Oöphoritis and salpingitis evidently do not possess as much interest for the author as for many gynecologists, since he gives relatively little space to their pathology. Nearly a hundred pages are devoted to ovarian tumors and ovariectomy. The anatomy of ovarian cysts is rendered exceedingly simple, the middle coat being described as "made up from the stroma of the ovary," while "the internal coat, or lining membrane, is doubtless the membrana granulosa of the ovisac, very much hypertrophied." It is a pity that this lucid explanation cannot be accepted without hesitation.

Tapping is discussed at some length under the head of treatment. Laparotomists now regard this measure with deserved disfavor, as it seriously complicates a subsequent radical operation, through the formation of adhesions. General practitioners should certainly be discouraged from resorting to the palliative treatment of ovarian cysts, since in many cases, while affording the patient temporary relief, they unwittingly impair her chances of recovery from ovariectomy. As regards the injection of irritating fluids into the sac and the establishment of fistulae, we have the weighty testimony of Mr. Tait that these procedures "can only be justified under very exceptional circumstances." Vaginal ovariectomy receives warm approval. The best commentary on this operation is the infrequency with which it is now performed by surgeons of large experience. The author is not enthusiastic in favor of primary drainage after laparotomy; his remarks on this subject are brief, but pointed. In describing the accidental puncture of the gravid uterus he has omitted any reference to a paper by Dr. C. C. Lee, read at a meeting of the American Gynecological Society in 1882, in which the reported cases are collected.

We are sorry to note in this work the usual disposition to underrate the danger of cysts of the broad ligament. The fact cannot be too strongly emphasized that these tumors are prone to assume a papillomatous character, especially after tapping, and that it is for this reason, and not because the fluid reaccumulates, that complete extirpation is the only treatment to be adopted. Figures 305 and 306, intended to illustrate the relations of such cysts to the broad ligament, hardly accomplish the desired end.

In the concluding chapter, on "Coccygodynia," some allusion might have been made to fracture of the coccyx, a condition which is often unsuspected and may be regarded as a not infrequent cause of the supposed functional trouble localized in that region.

From our criticisms it might be inferred that we have much fault to find with this treatise; such is far from being the case. It is a monument of industry and originality, equally creditable to the author's head and heart. We can perhaps express in a word the prevailing impression derived from a careful perusal of Dr. Byford's book, by saying that the author has himself modestly underrated it, by describing it as intended for the young practitioner. It is a book which the experienced specialist can well afford to study, and, in fact, must study in order to appreciate its solid merits.

H. C. C.

THE THROAT AND ITS DISEASES, INCLUDING ASSOCIATED AFFECTIONS OF THE NOSE AND EAR. With one hundred and twenty illustrations in color, and two hundred engravings, designed and executed by the author, LENNOX BROWNE, F.R.C.S.E., Senior Surgeon to the Central London Throat and Ear Hospital, Surgeon and Aural Surgeon to the Royal Society of Musicians, Consulting Surgeon to the Newcastle Throat and Ear Hospital, etc. Second edition. Rewritten and enlarged. 8vo. pp. xviii., 614. London: Baillière, Tindall & Cox, 1887. Philadelphia: Lea Brothers & Co.

THIS second edition of Mr. Lennox Browne's well-known work on *Diseases of the Throat* is still more valuable than the first one, brought, as it has been, to the very day of proof revision. The artistic excellence of the illustrations, many of them new ones, is not exceeded in any other work on the subject, and the insertion of the series of colored plates at the edges of leaves at the back of the volume as pursued in both editions, so that they can be kept spread out while the text is being perused, renders reference to them both easy and agreeable. While synoptic views are given of the general state of information on most of the topics discussed, there is no attempt at producing an exhaustive treatise; and, except where the importance of the topic demands it, or where the author's experience has been limited, the views given are practically those adopted by the author as the result of personal study and personal observation, irrespective of the fact whether they are in accordance with the views of other authors or in opposition. Due reference is made to other authorities as requisite to elucidate the sequence of the text, to support special views of the author, or to call attention to special views which have not been corroborated in his own experience. Among these references American authors are very prominent, occasionally, perhaps, as a matter of compliment, but much more frequently in actual good faith. The style of the language is easy and precise, without pedantry; the arrangement of the matter is methodic; the advice as to treatment is sound. The book, therefore, is to be regarded as a good practical working guide to both general practitioner and specialist.

There are twenty-seven chapters in this work, discussing seriatim, the anatomy and physiology of the organs involved, the methods of

examination, general semeiology, general therapeutics, general etiology and pathology; and then in sequence the special maladies of the pharynx, larynx, nasal and nasopharyngeal regions, and the aural maladies associated with nasopharyngeal disease.

Much as we would like to present a fair outline of this work, want of space restricts our notice to a few of the points which distinguish it from others. We note a new chapter on what Mr. Lennox Browne terms the "living pathology" of each disease as applied to patients under observation for treatment; that he is an enthusiastic advocate of lime-light illumination, and that he has utilized the results of his studies of voice production with Behnke to show the positions taken by the tongue, palate, and uvula in the production of the various tones in the register of the voice. In practising rhinoscopy he commends Michel's suggestion that the patient broaden his mouth before opening it to produce greater pendulousness of the palate. In the treatment of inflammatory diseases he speaks most highly of the efficacy of Leiter's temperature regulators, composed of flexible coils of metallic tubing, through which currents of water pass continuously, which he has found useful also in controlling spasms following traumatic oedema of the larynx, and which he especially recommends in tonsillitis, and catarrhal laryngitis.

He has devised an admirable modification of the umbrella coin catcher for foreign bodies in the œsophagus; the instrument being provided with an ivory or metal terminal for its better use as a sound or feeler, and with two pins and catches at the proximal extremity, one set to prevent expansion of the net of horse hair during its introduction and the other set to keep the net spread out during extraction of the foreign body without interfering with delicacy in manipulation. In discussing the etiology of throat diseases, the rheumatic, gouty, lithic acid diathesis is regarded as the strongest constitutional influence, while Seiler is followed in his views that the proclivity of vocalists to affections of the throat is due to improper methods of using the voice.

While admitting the existence of scrofulous disease of the pharynx, our author states that he has never seen a case of ulcerative disease of the pharynx corresponding to the descriptions of scrofulous ulceration which was not concurrent with the tuberculous or with the syphilitic dyscrasia. He calls attention to angular curvature of the cervical portion of the spinal column as a little known cause of constriction of the lower segment of the pharynx, and describes an interesting instance of that condition.

As to tonsillitis, he believes that the dartrous or arthritic diathesis invariably exists in patients subject to recurrent attacks of the acute form, and confirms the opinion of Hingston Fox that simultaneous bilateral inflammation is almost invariably septic in character.

The majority of laryngeal catarrhs are regarded as direct extensions from nasal catarrhs, and propagation of acute inflammations from nose to larynx as second only in frequency to direct inspirations of noxious atmospheres through the mouth. He has not found that exposures to keen winds, that inspirations of dry cold air, or of hot air, or that changes from heat to cold unaccompanied by moisture act specially as etiological factors in the production of catarrhal laryngitis.

In the treatment of chronic laryngitis the topical use of silver nitrate

is strongly condemned, and a case is mentioned in which Irsai, of Budapesth, had been compelled to perform tracheotomy for stenosis from thickening of the entire intralaryngeal mucous membrane caused by using solutions of only ten per cent. strength.

In the treatment of tuberculous laryngitis Krause's method by frictions with lactic acid is favorably mentioned, but Rosenthal's method with twenty per cent. solutions of menthol in olive oil is deemed of greater value in purely laryngeal cases.

In the treatment of neoplasms unguarded instruments are never employed. The snare is used most frequently, and the sponge probang of Voltolini is often resorted to. Stress is laid upon the liability of undue irritation of benign growths to act as a factor in their transformation into malignant ones. In discussing radical treatment for malignant neoplasms, complete excision of the larynx is rather discouraged, but unilateral laryngectomy is advocated in suitable instances, and the interesting case of the author is reproduced in considerable detail.

In discussing the neuroses of the larynx, attention is directed to varices at the base of the tongue, and to hypertrophy of the circumvallate papillæ, as factors in the production of nervous cough.

Nasal neuroses are duly presented, and caution recommended in regarding them as of too great significance.

In the removal of adenoid growths from the vault of the pharynx, a curette or a sharp spoon attached to a metallic finger stall is recommended as furnishing a handy means for the operative procedure.

These, then, are some of the special points of interest in this admirable work of Mr. Lennox Browne, which, as a whole, we can confidently commend as the conscientious result of careful observations in a prolonged, extensive experience in the diagnosis and treatment of diseases of the throat.

J. S. C.

OPERATIVE SURGERY ON THE CADAVER. By JASPER JEWETT GARMANY, A.M., M.D., F.R.C.S., Attending Surgeon to Outdoor Poor Dispensary of Bellevue Hospital; Visiting Surgeon to Ninety-ninth Street Hospital, etc. 8vo. pp. ix., 150. New York: D. Appleton & Co., 1887.

A VERY good manual to a course on operative surgery; succinct, clear, and comprehensive. Stephen Smith's directions have been chiefly followed, and they are generally good. We notice, however, in so unsurgical a proceeding as the extraction of teeth that no mention is made of the preliminary use of a lancet to free the tooth from the closely clinging ligamentum dentis, an omission that will, perhaps, do no harm when a cadaver is being operated upon beyond the increased difficulty to the operator which the neglect will cause, but which will add much both to the pain and the difficulty of extraction in the case of the living. Those who feel the need of a manual of operative procedures, especially prepared for the dissecting-room, should get and use this book.

S. A.

LESSONS IN GYNECOLOGY. By WILLIAM GOODELL, A.M., M.D., Professor of Clinical Gynecology in the University of Pennsylvania, etc. Third edition, thoroughly revised and greatly enlarged, with one hundred and twelve illustrations. Pp. xiv., 589. Philadelphia: D. G. Brinton, 1887.

WE have frequently heard expressions of surprise that a work so unpretentious as the present one should have attained such universal popularity. This is no matter of surprise to teachers of gynecology, who recognize in Professor Goodell's lectures qualities which provoke their envy. His book is a success, for the same reason that his clinical and didactic lectures are successful, because they are—like their author—earnest, honest, and replete with sound common sense.

This does not pretend to be a systematic treatise on gynecology, yet it covers the ground pretty thoroughly. By his terse, forcible style, his avoidance of useless details, and the thoroughly practical tendency of his teachings, the author holds and interests the general reader who would not have the patience to toil through one of the larger text-books.

It is scarcely necessary to dilate upon the peculiarities of a book which is in all our libraries. The present edition represents the result of a careful revision and remodelling, and we find many valuable additions, which are fortunately not introduced to the impairment of the original clear, epigrammatic sentences which marked the former editions.

Among these additions we note a clear description of Emmet's new operation for posterior colpoele, accompanied by very good illustrations. A word regarding the nature of injuries to the pelvic floor might have been *apropos*. On page 159 we read that a retroversion pessary acts by "propping up the dislocated fundus." Is it not better always to teach that what such a pessary really effects (aside from elevation of the uterus *in toto*) is simply distention of the posterior fornix and consequent backward traction upon the cervix? This the author himself explains in a succeeding chapter.

In the lesson on anteversion the impression might be derived that the accompanying vesical irritation is due to the pressure of the fundus uteri, when it is undoubtedly produced by traction on the neck of the bladder, exerted along the line of the shortened utero-sacral ligaments. The author must still believe to some extent in the old idea, since he seems to think that "the fundus is tilted off from the bladder" by a Graily Hewitt pessary.

With Dr. Goodell's teaching in regard to dilatation of the cervical canal we are already familiar, and have followed it with profit. It seems as if a disproportionate amount of space was allotted to hypertrophic elongation of the supra-vaginal portion of the cervix. In discussing this subject the author drops for a time his conversational manner, and assumes an argumentative tone.

Lesson XIX. contains a lucid account of Alexander's operation. There are certainly few, if any, writers who surpass Dr. Goodell in his clear and graphic descriptions of gynecological operations. We believe (and no higher commendation can be given) that, after reading them, the inexperienced surgeon would be able to carry out intelligently details with which he had had no practical familiarity, even from observation.

Lesson XX. presents an excellent *résumé* of the present views on the

disputed question of peri-uterine inflammation. The author's own deductions are most judicious. "I deem it best," he concludes (page 251), "to take a broad, or generic, view of the subject, and to treat it as if it were a single entity, and not made up of two entities."

In the chapter on radical operations for the cure of cancer of the cervix high amputation is dismissed with brief mention. As ordinarily employed at the present day, "high amputation" implies the separation of the bladder and posterior fornix, and not the simple stripping up of the tissues around the cervix "for half an inch or more." Freund's operation should be omitted from modern text-books. Under the palliative treatment of fibro-myomata we miss any reference to Apostoli's method, in fact the author seems to have had but slight experience with the use of electricity in this connection.

Some of the matter in the chapters on diseases of the tubes and ovaries we have encountered before in another place. The pathology of these affections is rather scanty, but the symptomatology is set forth with the author's accustomed felicity of expression. An exceedingly interesting discussion of the question of menstruation after oöphorectomy will be found on pages 405 to 413 inclusive; the changes that occur in the female after this operation are also described here. The whole subject of ovarian cysts and ovariectomy has been carefully rewritten and brought up to date. Hysterectomy has a separate chapter, Martin's method and illustrations being adopted.

The three concluding lessons remain very much as before, and will ever bear testimony to the fearlessness of their wise and witty author. We have sometimes heard sharp criticism of the final chapter, but in our opinion it reflects only the highest credit upon the writer who has dared to state delicately, and yet plainly, what other teachers have known, but have passed over in silence. It is well that it has been left unchanged.

In this brief *résumé* we have been able merely to hint at the good points in this excellent work. As we said before, it is so familiar to the profession that it has been our pleasant task rather to mention the improvements upon former editions. The clear type, binding, illustrations, and index are even more commendable than before. H. C. C.

OSNOVUZ PEKKUTOMETRI I PALPATOMETRI KAK METODOV KLINICHESKAGO
 IZSLEDOVANIGA, SOCHINENIE VLADIMIR-MARIANA VIKENTIEVICH
 PHILPOVICH. Odessa: 1886.

ELEMENTS OF PERCUTOMETRY AND PALPATOMETRY AS METHODS OF
 CLINICAL INVESTIGATION. By VLADIMIR-MARIANA VIKENTIEVICH
 PHILPOVICH.

DR. PHILPOVICH gives an account of several series of observations made with an ingenious percussor he has devised, which indicates the force of the blow struck. His object was to utilize, for diagnostic and prognostic purposes, a fact which had been observed independently by himself and Dr. James Ross, viz., that a slight tap on the chest wall over the pectoral muscles is followed by a transient elevation of the surface in many patients with pulmonary affections, while a really hard

blow with a similar instrument is required to produce the same effect in healthy subjects. The explanation of the phenomenon is that so long as the muscular fibres enjoy their normal irritability and conductivity the wave produced by the mechanical stimulus travels uniformly along the muscle in both directions away from the centre of irritation, but that if the relation between the irritability and conductivity is altered, either by the increase of the former or the decrease of the latter, this wave is arrested, with the result of producing a partial and local contraction giving the appearance externally of an elevation. In a healthy person the conductivity of the muscular fibres is lowered or destroyed by a smart blow, and so when the percussor is struck with sufficient force the muscle refuses to pass on the contracting wave and a local elevation is the result. This phenomenon is named by Dr. Philipovich "loco-tetanus." It is most easily produced, as was recognized by Ross, in such muscles as have a hard surface under them, as the pectorals, deltoid, supraspinatus, and infraspinatus. Other circumstances favorable to the production of local tetanus are a high body temperature and muscular fatigue.

The pectoral muscles of a hundred healthy men aged twenty-one years, were examined by what may be called the quantitative percussion method. The lowest force which produced "loco-tetanus" being a tap of 400 grammes, while the highest required was 2000 grammes, the mean numbers being 750 grammes for the right side, and 850 grammes for the left. In almost all the cases where the phenomenon was produced with a low degree of force, the men had a chest measurement less than half their height, and had either been rejected as recruits, or their military service postponed in order to enable them to improve. Much lower figures than these were obtained in the examination of diseased subjects, less than 100 grammes being sometimes sufficient. The lowest figures of all were recorded in phthisis, and next to that in pleurisy and pneumonia. It was invariably found that the side of the chest where the disease was the more marked, gave the "loco-tetanus" with the lower degree of force. In a case of dry pleurisy of the right side, the difference was very noticeable, the force required on the healthy side being 550 grammes, while on the diseased side one of 150 grammes was sufficient. In infectious diseases, as in typhus, the author was unable to detect any more reduction than could be accounted for by the high temperature alone.

The force commonly used in percussion was estimated by measuring that employed by eighteen different medical men, who were, as far as possible, kept in ignorance that their manipulation was being in any way tested. The lowest force varied only between 200 and 250 grammes, the medium force between 400 and 900 grammes, and the highest from 650 to 1200 grammes. Any force above 700 grammes is said to be generally painful, but surely this, as well as "local tetanus," must depend greatly on the form and hardness of the percussor. In Dr. Philipovich's instrument the blow is given with a metal ball covered with gutta-percha; no mention is made of the size of the ball, or of the thickness or hardness of the gutta-percha. If these instruments ever come into general use, it will be necessary to have them all tested by a common standard, and some means will be requisite for preventing the changes of temperature from affecting the elasticity of the gutta-percha. The head of the percussor can also be used to test the degree of pressure which can be borne without pain, corresponding in fact to Eulenberg's paræsthesiometer.

In a healthy condition this is generally from 1500 to 2000 grammes. In some cases of cardiac disease, endoarteritis, and in many other affections, the degree of tenderness appears to furnish an indication of the course of the disease. The author gives diagrams and charts showing how the surface may be mapped out by iso-analgesic lines and curves, constructed like those of a temperature chart, showing the variations in tenderness of particular spots from day to day. He draws attention to a fact which is quite appreciable by the hand alone, that a remarkable increase of tenderness over the spleen occurs very shortly before the defervescence of enteric fever takes place, so that the latter change may be confidently predicted within two days after the splenic alteration has been noted.

THE REFRACTION OF THE EYE. A MANUAL FOR STUDENTS. By GUSTAVUS HARTRIDGE, F.R.C.S., Consulting Ophthalmic Surgeon to St. Bartholomew's Hospital, etc. Third edition. 12mo. pp. xvi., 240. With ninety-six illustrations. Philadelphia: P. Blakiston, Son & Co., 1888.

This manual, in many respects the most complete of the smaller treatises on refraction, accommodation, and convergence, seems to have met an actual want on the part of students of ophthalmology; comparatively few of whom, it must be confessed, are prepared by previous mental discipline, to appreciate, or fully profit by, such exhaustive (and to the unprepared, exhausting) treatises as those of Helmholtz, Donders, and Landolt. But though this work has deservedly found favor with both teachers and students, it is far from being an ideal text-book; and it remains true that about the best short treatises on the subject are to be found in the chapters devoted to refraction in some of our standard works on ophthalmology. For instance, we find here on the first page the sentence, "Rays of light diverge, and the amount of divergence is proportionate to the distance of the point from which they come; the nearer the source of the rays, the more they diverge." Of course, what is meant here is, that the angular divergence of the extreme rays included within a certain space, as the width of a lens or the pupil, is inversely proportioned to the distance of the point from which they come; but the first part of the sentence quoted might be taken as teaching the exact opposite of this, while the last part is simply contradictory of the first. To one acquainted with the fact such a statement looks obscure enough; but to one who desires to learn the fact from the statement, it must be discouraging indeed. We give this instance so much more prominence than it would otherwise deserve, because it illustrates the worst fault of the book, crude, imperfect statement. In this respect there has been notable improvement since the first issue; but much room for further improvement remains. He who aspires to write a text-book, to make such a subject clear to the raw medical student, has need of a high order of literary skill.

The additions to this edition are scattered throughout the work, and are generally well incorporated, the most extensive being the quotation *in extenso* of the description of the shadow-test, with the plane mirror; first published in this journal in April, 1885. Several cuts have been added, or new ones substituted for old; but the cuts are in general not so well printed as in the first edition.

E. J.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE ABORTIVE TREATMENT OF SYPHILIS.

MR. JONATHAN HUTCHINSON has recently (*The Lancet*, February 25, 1888) published his matured opinions respecting the treatment of syphilis. This paper is marked by the painstaking accuracy and sincerity characteristic of its eminent author.

In using the term "abortive," Mr. Hutchinson means to express a method which arrests the development of specific manifestations—which suppresses the secondary phenomena. It consists in the administration of mercury from the earliest expression of a specific character in the sore. He prefers *hydrargyrum cum creta*, which he gives in grain doses, three, four, five, or six times a day, according to the conditions present. He rather intimates that any "suspicious sore"—any sore having an appearance suggestive of specific infection, yet not having fully developed specific characteristics—should be treated by the abortive plan, with discretion. At the earliest appearance of specific attributes in the sore, Mr. Hutchinson begins the mercurial treatment and carries it steadily on, carefully avoiding the production of salivation. He holds that mercury is the "antidote" to the specific virus, that it destroys the microbe, to the existence of which he fully commits himself; but recognizing the persistent viability of the parasite, he persists in the administration of the antidote through many months. The practical result is, that the secondary manifestations are suppressed, that the patient is spared the sore mouth, the eruptions, the baldness, etc., of that period, and that no ill effects are produced by the mercury, which, if the dose were small, and not too frequently administered, could be used during the whole period given up to the secondary stage under other management.

In the discussion that followed the reading of Mr. Hutchinson's paper, various opinions were expressed, but it is evident that the early and persistent use of mercury is the most popular treatment. Mr. Bloxam thought that a

six months' treatment by mercury is not long enough, and that the subcutaneous mode of using the remedy is the best. Mr. Malcolm Morris waits until the secondary manifestations are pronounced before beginning the use of mercury.

POISONING BY ANTIPYRIN.

An increasing experience in the use of antipyrin has developed the fact that this remedy is not without its unpleasant, even dangerous, action. The freedom with which it is now given, especially in France, must be restricted, if dangerous, or fatal, results are to be avoided. DR. OSCAR JENNINGS, of London, has recently published cases in which erythema and other cutaneous affections, depression of the circulation, and various cerebral symptoms were caused by ordinary doses (*Lancet*, p. 364, 1888). Several cases of severe urticaria (erythema nodosum?) have been reported from this country, and Professor G. Sée mentions some instances as occurring in France.

ANTIPYRIN IN MIGRAINE.

The evidence regarding the effects of antipyrin in relieving migraine is quite conclusive. In the number of *The Practitioner* quoted above there is a short paper by MR. BOKENHAM, of St. Bartholomew's Hospital, on this use of antipyrin. His especial experience is: the success of small doses in affording complete relief, no single dose exceeding four grains. Mr. Bokenham well says, that the unpleasant symptoms caused by large doses may be readily avoided, since such small doses as two or three grains will afford prompt relief to severe attacks. His experience now embraces twenty-six cases of migraine, observed during two months, and all of these were promptly relieved.

ITALIAN TREATMENT OF PULMONARY TUBERCULOSIS.

PROF. ENRICO DE RENZI (*Il Morgagni*, abstract in *Centralbl. für d. gesammte Therapie*, February, 1888) passes under review the influence of creasote by the stomach and by inhalation; of iodoform, turpentine, iodine, sulphuretted hydrogen, sulphurous acid, etc., by inhalation, and of the gaseous rectal injections.

Excellent results were had from the iodoform inhalations, and also from sulphuretted hydrogen. Creasote in considerable doses greatly lessened the bronchial muco-pus and the purulent matter of cavities, and exercised a favorable influence over the general nutrition.

The following formula was used:

Creasote (pure)	5 parts.
Alcohol,	
Balsam of Peru syrup, }	of each, 100 parts.
Water,	

Dose, a tablespoonful.

The rectal gas injections exercised a favorable influence on cough and expectoration, but had no effect on the existing pulmonary lesions.

He concludes that the most clearly curative effects are obtained by large use of iodine and iodoform.

AMYLENE-HYDRATE AS A HYPNOTIC.

In the first number for 1888 of *Deut. med. Wochenschr.* an elaborate clinical study of the hypnotic action of amylene-hydrate appears from Prof. Riegel's clinic, by GEORG AVELLIS.

As respects its rank as a hypnotic, it stands between chloral and paraldehyde. The doses that will cause sleep range from twenty to forty grains, the smaller acting two to three hours, and the larger, four to six hours. In character the sleep corresponds to the normal, and no headache or nausea follows. Respiration is not embarrassed, and the blood-pressure, which is lowered in normal sleep, is not changed in the sleep produced by amylene.

The disagreeable taste and irritating effects are the most unpleasant facts connected with its administration. Avellis recommends syrup of blackberries (*syrupus rubi*) to disguise its taste. It is found to act especially well when administered by the rectum. One "intelligent patient" is referred to who perceived the taste of amylene in three minutes after the rectal injection.

TOBACCO AMBLYOPIA.

MR. ST. CLAIR BUXTON (*Lancet*, February 25, 1888) finds the following formula uniformly successful in curing tobacco amblyopia:

Liq. hydrarg. perchloridi (B. P.)	.	.	.	.	5ss.
Potassii iodidi	.	.	.	.	gr. xij.
Aquæ destil.	.	.	.	.	ad. 5j.

To the above he adds for simultaneous administration the following pill:

Ext. nucis vomic.	.	.	.	.	gr. ss.
Ext. hyoseyami	.	.	.	.	gr. j.

Ft. pil. no. i. The pill of this strength is given three times a day, and with the solution.

COMBINATIONS OF PHENOL WITH MERCURY, AND THEIR THERAPEUTICAL USES.

In a communication to the Paris Academy of Medicine (*Revue de Thérap.*, Feb. 15, 1888), M. G. POUCHET announces that he has succeeded in making combinations of mono-atomic carbolic acid with mercury, and with calomel, also. He proposes these preparations for intramuscular injection in the treatment of syphilis, as substitutes for the calomel and yellow oxide preparations now used. He also advises these combinations for internal administration when a safe and powerful antiseptic is indicated.

LACTIC ACID IN THE DIARRHŒAS OF CHILDREN.

DR. G. HAYEM, more than a year ago, called attention to the remarkable utility of lactic acid in the diarrhœas of children. Recently, in a communication to the Academy of Medicine (*Revue de Thérap.*, Feb. 15), he has

renewed his suggestion, and presented new evidence of the value of the remedy. He finds that better results are had from larger doses than he formerly advised. In the more severe cases he has administered a two per cent. solution up to twenty teaspoonfuls in the course of twenty-four hours. The formula employed by him is the following:

Lactic acid (pure)	. . . . .	3ss.
Syrup	. . . . .	3j.
Water	. . . . .	5iij.

The strength of this is about one minim to the teaspoonful. The quantity given will vary with the age of the subject and the nature of the attack. M. Sevestre, one of the physicians to the Children's Hospital, confirms the statements of Hayem regarding the therapeutic power of the remedy in question, and he also finds that a considerable quantity is required to effect the best results. The latest experience demonstrates that a teaspoonful of the two per cent. solution should be given every five minutes in the worst cases, and from this up to a teaspoonful an hour; the amount required varies with the conditions present.

CHLORAL IN DIPHTHERIA.

DR. A. MERCIER, of Besançon, has utilized with remarkable success the antiseptic action of chloral in the treatment of diphtheria. If indications demand, an emetic may properly begin the treatment. The preparation used is the syrup of chloral of the French Codex, the strength of which is twenty per cent., or one ounce of chloral to five ounces of syrup. Of this preparation the patient gets, every half-hour, two, three, or five grammes (3ss-3jss), and no drink is allowed for some time that the syrup may retain its hold on the mucous membrane. In forty-eight hours after the treatment is begun, the false membrane is dissolved and disappears. The administration of the chloral then becomes painful, and when all of the false membrane has disappeared the syrup is discontinued. In persons of a blonde type, the membrane disappears more slowly—often not until the third day.

Externally to the neck, Dr. Mercier applies, by friction, belladonna ointment. The patient is allowed to indulge his own tastes in the matter of food and drink.

Apropos of the treatment of diphtheria, it must be mentioned that DR. CORBIN, of Brooklyn, has just published some remarkable experiences which should have wide publicity (*New York Medical Journal*, March 10). He reports the treatment of sixteen cases of "laryngeal diphtheria" with mercurial fumigations, and of these three died—"two of albuminuria two weeks after apparent recovery, and one from blood-poisoning" (septicæmia?). Besides these treated by himself, Dr. Corbin refers to fourteen cases treated by the same method by other physicians on his suggestion. Of the thirty cases in all, twenty-five recovered—the mortality being thus sixteen per cent., truly a remarkable result in cases of that character.

The method consists in the following details: Over a child's crib barrel-hoops are secured, and a flannel blanket tied, making a tent or canopy. "In the case of a child eight or ten years of age, he volatilizes from forty grains

to a drachm of mild chloride. He keeps the child under the canopy twenty minutes, when the blanket is removed. This is repeated every two or three hours during the first day. The fumigations are repeated as found necessary, and for several days up to and over a week from the first. "At the beginning and end of a fumigation milk puuch or wine is given," and throughout strict attention to alimentation is of fundamental importance.

TREATMENT OF PSORIASIS BY IODIDE OF POTASSIUM.

DR. HASLUND (*Vierteljahrs. für Dermatol. u. Syph.*, No. 3; quoted by *Revue de Thérap.*, Feb. 15, 1888) reports that of 50 cases of psoriasis treated with iodide of potassium according to the method of Grenées, 40 were cured, 4 were improved, and 6 were not at all benefited. The method of administration consisted in giving at the outset three grammes (fifty grains) a day, and this was increased gradually to fifty grammes (nearly two ounces). The treatment has averaged seven weeks in duration, and although iodism with its attendant troubles has been produced, Dr. Haslund feels that he is justified in strongly urging the use of this remedy.

USES OF CANNABIS INDICA.

DR. McCONNELL, Surgeon-Major Bengal Medical Service (*The Practitioner*, February, 1888), narrates his experience in the use of cannabis indica. His observations, made in India, may need some qualification in their applications to European and American humanity.

Small doses of the tincture and fluid extract (m_v to m_x) have been found useful in anorexia, in "dyspeptic diarrhœa," and in the ordinary summer diarrhœa. He advises the following formula:

R.—Tinct. cannabis indic.	. . . . .	m _x —m _{xx} .
Bismuthi subnitrat.	. . . . .	gr. x.
Spts. chloroformi	. . . . .	m _{xx} .
Mucil. acaciæ	. . . . .	ʒss.
Aquæ cinnam.	. . . . .	ʒj.—℥.

Sig. One dose.

As a hypnotic, Dr. McConnell has found it useful, especially when aided by small doses of chloral or bromide of potassium.

DYSMENORRHEA.

The following combination is recommended by GOUBERT:

R.—Iodoformi	. . . . .	2 grains.
Ext. belladonnæ	. . . . .	½ grain.
Asafœtidæ	. . . . .	4 grains.

Ft. pil. i. Six of these pills are given daily, and from six to ten days before the menses appear.

THE SUBCUTANEOUS INJECTION OF METHYLAL IN DELIRIUM TREMENS.

PROF. V. KRAFFT-EBING, of Gratz, reports the results of the subcutaneous use of methylal in twenty-one cases of delirium tremens (*Therapeutische Monatshefte*, February, 1888).

He finds it to be the best agent for producing sleep in this disease. It is more especially adapted to any anæmic condition of the nervous system, and is not so useful when hyperæmia exists.

— IODOFORM MIXTURE.

BOUCHARD proposes the following:

Iodoform	8 grains.
Ether	℥ij.
Vegetable charcoal, powdered	℥iv.
After thorough mixture, and before evaporation of the ether, add Glycerine	
	℥iij.

— METHYLAL.

For the topical application of this new anodyne, the following is used:

Methylal.	15 parts.
Ol. amygdal. expres.	85 " M.

— MEDICINE.

—
UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,

PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-
DOOR DEPARTMENT, NEW YORK.

— AN EPIDEMIC OF MEASLES.

HODGES (*Boston Med. and Surg. Journ.*, February 2, 1888) reports an epidemic of 45 cases occurring in one institution, and interesting from several points of view. It could be very definitely determined that the period of incubation lasted in 1 case nine days, in 1 eleven days, in 16 from eleven to twelve days, and in 1 fourteen days. Examination of the throat showed a varying amount of congestion, and in three instances where this was very marked diphtheria followed in twenty-four hours. Five patients died; 4 from diphtheria and 1 from capillary bronchitis. The eruption reached its height on the fifth and sixth day, and lasted twelve to fourteen days. In 8 cases it did not disappear for over three weeks. Desquamation was noticed in over half the cases: in a few of which large pieces of cuticle were thrown off. Aphthæ of the lips and tongue was observed in 9 cases, and otitis occurred in 25 cases.

— A CASE OF HEREDITARY CHOREA IN THE ADULT.

ZACHER (*Neurolog. Centralbl.*, 1888, No. 2) reports a case of this exceedingly rare disease. The patient, forty-five years old, was well until four years ago,

when the disturbance of motion began to develop. For two years he had been unable to walk, and had been very excitable and irritable, with a tendency to destroy everything, and was finally committed to an asylum. He exhibits peculiar irregular purposeless movements, apparently in all the voluntary muscles. The head is turned from side to side; the face undergoes all sorts of grimaces; respiration occasionally has a sobbing, rasping sound. The arms are in constant choreiform movement, and the same motion in the legs renders the gait irregular and laborious. The patient is able to control the muscular unrest for a moment, and to perform an intended movement with considerable promptness and certainty. He can write his own name well the first time, but a second immediate trial is not successful. The tongue twists about within the mouth, and can only be protruded with difficulty. Speech is rather monotonous and with frequent pauses. All movements cease during sleep. The muscles are well developed, and their strength preserved; the patellar reflex not increased, and sensibility undisturbed. Intelligence seems slight, though it is difficult to determine in how far this is due to his imperfect education. The family relationships of the patient are highly interesting, since, for several generations, various members have been affected by the disease. The author was unable to verify all the statements made, but discovered with certainty that the maternal grandfather and two of his brothers had the "shaking disease" (Zitterkrankheit), while a sister was insane and died in an asylum. The grandfather had two sons and one daughter. The latter and one son had the same affection; the other son died away from home, and nothing is known of his condition. The daughter had seven children, of whom three are now living and were attacked by the disease after the age of forty; one being the patient under consideration. The patient himself has four children, all young, one of whom is said to have occasional twitchings of the face. The author was unable to discover whether, in the cases among the patient's antecedents, the disease commenced in adult age, but the fact that they were married renders it probable that the symptoms did not appear until after that time.

Various descendants of the brothers of the grandfather also are said to have had the same affection, but the author did not succeed in learning anything more definite regarding them.

There appears to be no doubt that this is an instance of the disease described by Peretti, Ewald, and others. As in Peretti's cases, the choreic movements were strongest and more wide-spread at the time when the psychic disturbance was greatest. The same parallelism may be noticed sometimes in cases of ordinary chorea.

[The author seems to have overlooked the fact that cases of this affection were first described by Huntingdon (now of Pomeroy, Ohio), and that last year a remarkable family history, with cases, was published by Huber, and quoted in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES for October, 1887.]

SPINAL PROGRESSIVE MUSCULAR ATROPHY; AND AMYOTROPHIC LATERAL SCLEROSIS.

STRÜMPPELL (*Deutsch. Archiv f. klin. Med.*, B. xlii. H. 1-3, 230) says that the dispute that has lasted for years as to whether the disease called "pro-

gressive muscular atrophy" is due to a primary affection of the muscles, or to some disorder of the spinal cord, has been settled by the discovery that both possibilities exist; the confusion having been caused by the endeavor to unite the two affections, the myopathic and the spinal form of spinal atrophy, which are to be sharply distinguished from each other. "Primary myopathic atrophy" has certain well-marked peculiarities which characterize it, yet it includes several forms which have formerly been described as distinct by various authors, such as pseudo-hypertrophy, hereditary muscular atrophy, juvenile muscular atrophy, etc. But in the interest which the subject has awakened in more recent years, *spinal muscular atrophy* has been thrust into the background.

Some years ago, nearly all cases of progressive wasting of the muscles were classified under this title, but it now appears to denominate a really rare affection, if, with Charcot, we include under this name only those cases in which the autopsy has shown that the anterior horns of the gray matter were alone affected; the white matter, and especially the lateral tract, having entirely escaped. The author reports such a case, where progressive atrophy of the muscles occurred in the upper part of the body, and where the patient finally died some months after, and as a result of an apoplectic stroke, six years after the onset of the atrophic disease. The autopsy showed an almost complete degeneration of the anterior horns in the cervical region, with disappearance of the large ganglion cells; the anterior nerve-roots being also diseased. There existed further a descending degeneration of the pyramidal columns, both here and in the dorsal and lumbar regions, while the anterior horns were not evidently affected in the last two portions of the cord. It seems clear that the affection of the antero-lateral tracts had, for the most part, nothing to do with the originally diseased portions, but started from the spot of softening in the brain. There was, further, a certain amount of degeneration of the periphery of the cord. The affected muscles were greatly atrophied, the biceps being hardly larger than a lead pencil; and microscopically they revealed a high degree of degenerative atrophy. The peripheral nerves in the affected parts had also undergone a degree of degeneration.

From a clinical point of view we find the symptoms, apart from the apoplexy shortly before death, exactly those of spinal progressive muscular atrophy, consisting exclusively for years in a very slowly advancing degenerative atrophy of progressively new muscular regions, with a corresponding loss of power in them. The atrophy probably began in the deltoid, and spread symmetrically to the biceps, brachialis anticus, supinator longus, and the supra- and infra-spinatus. The disease, therefore, first appears in a certain group of muscles, just as we see certain groups first involved in lead palsy, infantile paralysis, etc. The atrophy in this case then spread to other muscles of the upper part of the body, but it was only late, and but to a slight degree, that the muscles of the lower extremities were affected, those of the face, and speech and deglutition, remaining free from the disease. There was never any evidence of spastic symptoms or of disturbance of sensation.

It is difficult to determine where and in what order the degeneration in this disease develops. The most generally adopted view is that the injurious influence first operates on the ganglion cells in the anterior horns, and that the degeneration descends from this point to the muscles. There are several

reasons, however, which render it very possible that it is the peripheral part of the nervous system which is first involved, and thence the disease spreads upward. In just which of these ways the system is attacked we are unable to determine in the present state of our knowledge. A careful study of the anatomical changes in the cord leads to the conviction that the peripheral degeneration in this case, as well as a part of the degeneration of the lateral columns, was connected in some way with the original disease, without having produced any clinical symptoms differing from the characteristics of muscular atrophy; and this observation teaches us that we must not form too narrow a conception of the limits of the anatomical lesion in even such a sharply defined systemic spinal disease as this is.

The active agent in producing the disorder is not known, and the hypothesis that over-strain of the muscles may induce it is not satisfactory, and does not correspond to facts. It would seem more probable that some poison of unknown nature and source is continually at work in the system; and this hypothesis accounts for the slow but steady advancement of the disease.

The study of this so well characterized affection, spinal progressive muscular atrophy, has in times past been rendered more obscure by confounding with it cases of *amyotrophic lateral sclerosis*. The latter disorder is, it is true, allied to progressive muscular atrophy, but is to be distinguished from it clinically by the presence of the so-called *spastic symptoms*; and anatomically by the extension of the degenerative process past the cells of the anterior horns to the pyramidal tracts. The central portion of the motor tract, from the convolutions to the cells of the anterior horns is thus invaded, as well as the peripheral portion, from the anterior horns to the muscles, which alone is attacked in spinal progressive muscular atrophy. Strümpell then reports two cases of amyotrophic lateral sclerosis in which the autopsy confirmed the diagnosis. He does not agree with Charcot that the muscular atrophy in this disease appears in a diffuse manner, making no selection of special groups of muscles. In the two cases reported as well as three others which he has seen, the same muscles were evidently first affected as in progressive muscular atrophy, namely, those of the thumb, the interossei, the extensors of the forearm, the flexors of the forearm, the deltoids, and the infra- and supra-spinati.

Charcot further states that in the disease in question paralysis always precedes atrophy; and with this, too, Strümpell differs. It is true in some cases, especially as it applies to the muscles of the legs; but he believes that it is usually impossible to distinguish any difference between the time of development of atrophy and paralysis in the upper extremities.

The spastic symptoms, usually described as excessive, need not be at all conspicuous, as is proved by one of the author's cases in which the only symptom of this nature consisted in a very considerable exaggeration of the tendon reflex of the upper and lower extremities. We should not expect to find true contracture of the muscles in all cases of amyotrophic lateral sclerosis. This variation in the degree of the spastic symptoms explains the difference between the definitions of Charcot and Leyden; but it is not always easy to understand why these variations exist, or how the reflexes can be increased when muscular atrophy is present. It must be

that as regards certain muscle bundles the disease preponderated in the lateral column, while as regards others the affection is most advanced in the ganglion cells, or in the peripheral section of the motor tract.

We find here the same or even greater difficulty than in progressive muscular atrophy in understanding in what way and in what order the disease develops in different parts of the nervous system. It is also very probable that the extension of the anatomical localization by no means always takes place in exactly the same way. Thus, in one of Strümpell's cases the spastic symptoms were well marked, and the pyramidal tracts were found seriously diseased; while in the other case, spastic symptoms were absent, only exaggeration of the reflexes, as stated, and comparatively slight involvement of the lateral column, were found to exist. His last case, indeed, seems to stand intermediate between typical amyotrophic lateral sclerosis and pure spinal progressive muscular atrophy.

This same case, and several others in the literature, render it a doubtful matter whether the sole cause of the degeneration is in the ganglion cells, and opens the question whether after all it is not, at least in some cases, the peripheral nerves which are first attacked, and that later the ganglion cells become involved. Amyotrophic lateral sclerosis has been regarded as one of the most characteristic systematic spinal diseases, yet the extent to which the lateral portions of the cord are involved varies considerably. The fact, however, that the direct cerebellar columns and the columns of Clarke always remain uninvolved is a proof that the degeneration is purely systemic, and does not spread diffusely in a horizontal direction.

We must conclude that both spinal progressive muscular atrophy and amyotrophic lateral sclerosis must not in the future be so strictly viewed as insulated systemic diseases, but that other nervous districts in the cord may very often be involved, though the clinical symptoms do not appear to be altered thereby. The author finally emphasizes the very close relationship which exists between the two diseases, and the affinity of both of them to chronic bulbar paralysis; and speaks of the increasing difficulty of making any sharply defined schematic separation between them, either from a clinical or anatomical point of view.

THE INHERITANCE AND CURABILITY OF TUBERCULOSIS.

STICH (*Deutsch. Arch. f. klin. Med.*, B. xlii. H. 1-3, 219) believes that the inherited predisposition to tuberculosis has entirely too much importance attributed to it, and that the disease is much more curable than is ordinarily supposed.

For years, it is true, we had been taught to believe that these two features, *inheritance* and *incurability*, were fundamental characteristics of tuberculosis. Great doubt was thrown on the first of these by Koch's discovery of the tubercle bacillus; for if tuberculosis were an infectious disease caused by a microorganism, the question arose as to what could be inherited. It seems impossible to believe that the transmitted bacillus fixes itself upon the fœtus; and the only thing then inherited must be a certain disposition to disease, or weakness of certain tissues, which were themselves weak in the parents; just as the color of the eyes, hair, etc., may be transmitted from parent to child.

If this then is all, there is no reason why, by proper care of the development, these weak tissues cannot be made as strong and as resistant to the inroads of the tubercular microbe as those of any other individual; and lose in time any special liability to the disease. In what this weakness of the tissues consists cannot yet be determined. It is, moreover, to be borne in mind that the most robust individual, without a trace of inherited taint, may fall a victim to the malady.

Clinical histories might be related bearing upon the point which the author wishes to make, but he confines himself to one incident. For eight years he has been the physician to the orphan asylum of Nürnberg, in which were many children with exceedingly bad family histories of tuberculosis, as is to be expected among orphans, yet but one case of tuberculosis has occurred in the institution. Moreover, among those who had left the asylum, there has developed, so far as he could discover, only one case; though many of the former inmates have reached twenty years of age.

The question as to the reason for this strange immunity has often occurred to him, and is, he thinks, to be explained by the scrupulous care for ventilation and cleanliness which the institution receives, as well as by the other excellent hygienic conditions under which the patients live. The children are early accustomed to daily cold baths, and are much in the open air. Other diseases of the respiratory apparatus—even such ordinary ones as bronchial catarrh—are almost never observed.

Concerning the *curability* of tuberculosis there are widely varying opinions; some writers allowing that well-recognized cases recover; others that only patients in the incipient stage may get well, while still others claim that even the apparently perfect healing of a tubercular process, lasting thus for ten years or more, is but a temporary arrest of the disease. All agree that cure in the true sense of the word is impossible in the advanced stages. Whether tuberculosis in its early course is curable cannot be determined either affirmatively or negatively on purely theoretical grounds, and only the evidence from positive and undoubted cases of the disease which have been under observation for years is of value. The author has devoted considerable attention to this matter for several years, and is disposed to answer the question in the affirmative. He relates several instances from his own experience, seeming to prove that recovery may take place. These had had repeated hemorrhages from the lungs, and exhibited evidences of consolidation, yet had, to all appearance, entirely recovered, and the physical signs had for the most part disappeared. The author has often been in the position to observe a not infrequent occurrence: namely, that in the apex of an apparently healthy lung there will be found *post-mortem* one or more small cicatrices of former cavities, filled with crumb-like, cheesy contents; these being the remains of a chronic pneumonia, or, more properly speaking, of a well-advanced tubercular process. He relates two cases in aged persons dying of gangrene and of carcinoma respectively, in one of whom there had been a history of pulmonary disease—hemorrhage and cough—during youth, and where the *post-mortem* lesions just described were present.

As regards the treatment of tuberculosis, he advises no great change from that ordinarily employed, but would especially insist on having fresh air in the rooms, and abundant diet. Bodily exercise, even to fatigue, is very

valuable, provided that it be taken in fresh air, and that there is no disposition to hemorrhage. He recommends mountain climbing and long walks, and that the windows of the rooms be constantly open in good weather, but closed at night in all disagreeable weather. Medicines are only employed as symptoms demand them.

SARCINA OF THE LUNG.

The occurrence of sarcina in the lung was first shown by Virchow in 1846, and since that time cases have been described by many writers. HAUSER (*Deutsch. Archiv f. klin. Med.*, B. xlii., H. 1-3, 127) gives an account of the researches of different writers on the subject, and then details his own experiments in producing pure cultures from the sputum of a phthisical patient in which the sarcinæ were abundant. He concludes that the observations of former investigators on pneumo,- stomato,- and pharyngo-mycosis sarcinica, together with his own studies, show that in the most different forms of disease of the human respiratory tract, but especially where there is a formation of cavities in the parenchyma of the lung, there may occur a well characterized variety of sarcina, which has nothing to do with the gastric sarcina, nor with any other known species, and for which he proposes the name "sarcina pulmonum."

It has been proved, however, that it neither has any etiological connection with the diseased condition which it may accompany, nor is it able to influence its course in any perceptible way.

FAILURE OF THE HEART IN VALVULAR DISEASE.

A valuable and thoroughly practical paper under this title, by BRUCE, appears in the *Practitioner* for January, 1888. It is only within the last few years that we have learned to appreciate fully the truth that hypertrophy of the heart is a condition to be welcomed when there is valvular lesion; that there are, in fact, no symptoms attending perfect compensation. On the same principle, when there appear symptoms of cardiac distress, we regard them as evidences of failure of the heart. We say that "compensation has become imperfect;" that the "hypertrophy has broken down." We have learned to understand that the symptoms formerly said to be those of valvular disease are, in reality, those of failure of the cardiac wall. But after all, failure of the heart is only an effect behind which lie a number of discoverable causes, but which are too often neglected in the physician's study of his individual cases; and it is the object of the author in this paper to study cardiac failure from this point of view.

Etiology.—1. The most common and readily appreciated cause of failure of compensation is *muscular overwork*; a cause seen largely in hospital practice and among the poor in general. It is easy to understand how overstrain of the skeletal muscles induces dilatation of the heart.

2. *Nervous causes* occupy the second place in order of frequency. Of these the depressing emotions are the most serious, worry being one of the most common.

3. The next series of causes of cardiac failure are the different forms of *imperfect blood supply*. There are two well defined classes of these, which must

be carefully separated: (*a*) impoverished condition of the blood; (*b*) disease of the coronary arteries.

(*a*) *Impoverished condition of the blood* is the agent in a large number of cases. Compensation is difficult to establish or maintain in the poor, underfed subject of valvular disease, in whom the coarse food generates dyspepsia, and the products of this poison the blood. The cardiac wall may again be imperfectly nourished in the patient at the opposite pole of the social sphere, in whom the blood is vitiated by the products of disordered digestion from over-rich food. The muscular tissue of the heart in such subjects becomes fat, pale, and soft; cardiac distress increases and prevents exercise, and this, in turn, augments the digestive, assimilative, and excretory derangements. Under this same head are to be classed those cases of quiescent heart disease which have been treated by rest and nourishment to the extent of abuse. In still other cases impairment of the general nutrition causes the development of cardiac symptoms; namely, in those subjects of valvular disease who had lived an active, useful life, but who have "retired."

(*b*) *Disease of the coronary arteries* is a second great cause of imperfect blood supply; and the author relates some cases of death from almost complete closure of these vessels.

4. *Intercurrent disease* is another cause of cardiac failure in valvular lesions; and the author regards with especial anxiety the occurrence of rheumatism or of disease of the lungs. Rheumatism of a subacute type is a common cause of disturbance of compensation in young subjects. Compensation has not, perhaps, been fully established after the occurrence of the rheumatism which first involved the heart, when another attack of the disease prostrates the bodily strength of the patient, and thus disturbs compensation, if, indeed, it does not create a fresh outburst of endo- or peri-carditis.

Acute and chronic disease of the lungs operates less frequently than rheumatism, but is far from uncommon. It frequently happens that compensation is destroyed by the occurrence of pneumonia or bronchitis; and chronic bronchitis and emphysema, by growing worse in winter, frequently induce repeated break-downs of the diseased heart at that period of the year. In these patients the pulmonary disease is not secondary to cardiac failure, as is often supposed, but entirely independent, and, indeed, the cause of it.

5. There are *causes peculiar to women* which may disturb the compensation and produce cardiac failure. Pregnancy, labor, parturition, lactation, and the menopause, disturb all the physiological systems, and through these disorder the nervous and nutrient relations of the heart.

6. We should never fail to inquire for the existence of the *cardiac poisons* in use every day—tea, coffee, tobacco, and alcohol. The first three often cause such distressing sensations and palpitation during indulgence in them, as to connect them definitely with the attacks; and their use is given up without much difficulty. There are, however, few more hopeless forms of cardiac dilatation than that seen in the chronic drunkard.

7. The onset of symptoms indicative of cardiac failure may be due to *increase of the valvular lesion* developing suddenly or slowly, but which finally exceeds the increasing hypertrophy.

8. The last cause of failure of the heart in chronic valvular disease is *limit of the compensation*—i. e., not the limit of hypertrophy; but the slowly but

surely advancing changes in the lungs, liver, kidneys, and even in the heart muscle itself, which at last sap the nutrition, and destroy the compensation. Judicious treatment may, for a time, restore the balance, but the end cannot be indefinitely averted; the limit of compensation is finally reached.

The author has discussed the causes of heart failure singly. Of course, two or more are frequently associated.

Prognosis.—The preceding considerations change the whole aspect of cardiac prognosis. We must distinguish between the prognosis of valvular disease and that of cardiac failure. The former is chiefly concerned with the particular valve affected, and is mainly statistical in its methods. Thus it teaches, for instance, that aortic insufficiency is a more serious disease than aortic stenosis. The latter is concerned with the *cause* of the failure, which we must investigate in every case, for it depends on the nature of the cause in each individual under which compensation has given way whether the prognosis will be (1), favorable (2), unfavorable, or (3), doubtful.

(1) The prognosis is comparatively favorable in cases due to (a) *muscular overwork*, except where there is a history of sudden aggravation of the symptoms from strain; when it may be most grave. (b) Failure of the cardiac wall from *impaired general nutrition* (poverty, anæmia, dyspepsia, etc.); but severe hemorrhage may thus prove fatal. (c) *Toxic causes*; except alcoholism. (d) Previously *misapplied treatment*; routine treatment, especially by rest and tonics, irrespective of the cause.

(2) The prognosis is comparatively unfavorable in cases of failure due to (a) *impaired local nutrition*—i. e., vascular disease (disease of the root of the aorta and of the coronary arteries, syphilitic, degenerative, etc.). (b) *Intercurrent rheumatism*; especially in young subjects; and *intercurrent acute pulmonary disease*. (c) The *limit of compensation* having been reached.

(3) Prognosis is uncertain and obscure in cases of failure due to (a) *Nervous* causes, which are often beyond our control. (b) *Aggravation* of the original valvular lesion; the prognosis depending on the extent of the new lesion, and on fresh compensation. (c) *Climacteric* causes; especially uncertain in pregnancy and the post-partum state. (d) *Undiscoverable* causes.

Treatment.—The first principle is: Do not treat cardiac disease without sufficient evidence that treatment directed to the heart is required. The second principle is equally clear. If the heart is really failing, do not apply treatment in a routine fashion. As the cardiac failure is but an effect, the only rational means of treatment is to discover and treat the cause. This plan of treatment is more laborious and troublesome, but cannot fail to be the most successful, and we have an extensive choice of hygienic and therapeutic measures. The third principle is the complement of the second: If the cause of cardiac failure be undiscoverable or irremovable, do not hesitate to treat the effects. The search for and treatment of the cause must not be carried too far. In these cases, and in urgent cases from whatever cause, the immediate relief of the symptoms is the great end to be attained. Even in less urgent cases our treatment must be partly symptomatic, since we cannot remove the cause all at once. Under these circumstances we reduce the *load* which the enfeebled ventricle has to carry, by cupping or bleeding, paracentesis, puncture of the legs, and purgation. We reduce the *resistance* ahead of the ventricle by nitrite of amyl, nitro-glycerine, alcohol, direct renal

diuretics, and purgatives. We increase the *force* of the heart, its driving power, by ether, ammonia, strychnine, and food.

If we can act with more deliberation, we may use the direct cardiac tonics; as digitalis, strophanthus, and convallaria. These drugs are invaluable remedies, but, as the author has already emphasized, must not be used when compensation is already established, and must be properly applied to the individual case.

ALBUMINURIA IN DIABETES MELLITUS.

In view of the great diversity of opinion on this subject elicited during the last medical congress held at Wiesbaden, POLLATSCHKE (*Zeitschrift f. klin. Med.*, vol. xii.) undertook to work up the copious records of urine examinations made in Carlsbad. For this purpose the chemist Lippmann, of Carlsbad, gave him access to his records for the years 1885 and 1886. In these two years 2877 examinations had been made, and of these 1187 were found to contain glucose, of which 437, or 36.8 per cent., contained also albumin in larger or smaller quantities. With regard to the relationship between the quantity of glucose and albuminuria, it could only be said that albumin is more often present when the amount of sugar exceeds 0.5 per cent.

AORTIC INSUFFICIENCY AND PULSATION OF THE SPLEEN.

GERHARDT writes (*Centralblatt f. klin. Med.*, 1, 1888) that as in cases of aortic insufficiency it is only when the heart is acting forcibly that the double aortic sound can be heard in the femoral arteries, so there are other signs of aortic disease which can only be detected under certain conditions. In this class may be placed pulsation of the liver and spleen. One of the conditions favoring the production of pulsation of the spleen in insufficiency of the aortic valves is the presence of a febrile state with a febrile swelling of the organ. Gerhardt has also seen a case of lead colic in a patient with aortic insufficiency, where the pulsation of the spleen could only be detected while the influence of the lead persisted. In another case of lead colic with acute articular rheumatism, endo- and pericarditis, and rheumatic pneumonia, the spleen began to pulsate before the murmur in the aorta could be heard. As the patient recovered, the splenic pulsation disappeared, though distinct aortic disease remained. In how far it was the fever, and in how far the action of the lead, which aided in the production of the pulsation, must remain doubtful, though probably the fever was the principal factor. The first case proves that lead intoxication may induce pulsation of the spleen in cases of aortic insufficiency. The second case shows either that the lead and fever together without the existence of aortic disease caused the pulsation, or that aortic insufficiency existed and brought on the pulsation before a murmur became audible. As fever and lead are, next to the valvular lesion, the commonest causes of a double tone in the femoral artery, and as it has been noticed that the majority of pregnant women also exhibit this double tone, it became interesting to discover whether a combination of pregnancy and aortic insufficiency would not produce a pulsation in the spleen; and a case soon came to the author's observation which showed that this could indeed occur. The diagnosis was confirmed by autopsy, and Gerhardt's paper

contains an account of the symptoms and of the post-mortem lesions. The point of resemblance of these three factors—lead, fever, and pregnancy—which, with aortic insufficiency, are capable of developing pulsation of the spleen, rests in the fact that they all produce a double tone in the femoral artery. A double tone arises here when diastole and systole of the artery occur under great rise and fall of the blood-pressure; but in what way these three agents produce this effect is not clear. It seems certain that splenic pulsation may be present without the existence of aortic disease and these concomitants; since the author has a case of tubercular empyema under observation in which the spleen can be felt to pulsate distinctly.

SOME NEWER METHODS FOR THE RECOGNITION OF FREE HYDROCHLORIC ACID IN THE GASTRIC SECRETION.

ALT (*Centralblatt f. klin. Med.*, 1888, No. 3, S. 41) says that it is of the greatest importance that the practitioner should possess an accurate and convenient method for recognizing the presence of free HCl in the gastric juice. In Riegel's clinic, where he has made his experiments, dependence has been placed upon tropæolin, methyl-violet, and Congo red; the last, in the form of Congo paper, is especially recommended by Riegel as entirely satisfactory. Quite recently both Günzburg and Boas have raised such serious objections against Congo red, that, if substantiated, this reagent must be abandoned. The former recommends phloroglucivanillin in its place; and the latter, tropæolin paper. The objections urged are that the change from the red of the Congo to blue takes place equally well with the organic acids; and Boas claims that even a 0.03 per cent. solution of lactic acid will produce it. These results are very important, and would effectually destroy the value of the Congo test, did not those which have been obtained in the very large number of cases in Riegel's clinic entirely contradict them.

In order to explain the contradiction, the author, associated with Kuhn, has made comparative studies of the delicacy of both the older and the more recently recommended reagents, especially of the phloroglucivanillin and the tropæolin paper reactions referred to. Control experiments were made with artificial lactic acid solutions, which showed that an aqueous solution of a strength of 0.025 to 0.03 per cent. would cause evident, though faint blueing of Congo paper. The conditions were, however, quite changed when the gastric juice was employed; it being found that lactic acid added to the secretion free from HCl would not cause blueing of the paper until a strength of 1.02 per cent. had been reached; and though secretions from different cases were employed the results were the same. But such a degree of acidity of the gastric secretion from lactic acid does not occur in the economy, or only with the greatest rarity; so that the value of the test for HCl is not at all influenced by this discovery. On the other hand, it was found that wherever phloroglucivanillin, tropæolin paper, methyl-violet, and tropæolin *oo* exhibited the characteristic reaction, Congo became distinctly blue; and where the latter was not altered, the others also remained unaffected. These newer tests, therefore, offer no advantages over Congo red, and are inferior to it in the ease of application. The author emphasizes the statement

that too much importance in any event must not be given to simple color reactions, but that in each case the peptic strength should also be determined.

SACCHARIN IN DIABETES.

Saccharin, the new derivative of coal tar, whose wonderful sweetening powers have been taken advantage of to afford diabetics a substitute for sugar, seems to have a therapeutic as well as dietetic interest, for according to KOHLSCHÜTTER and ELSASSER (*Deutsches Archiv f. klin. Med.*, vol. xl. p. 178) it has the power of diminishing the amount of urine as well as the percentage of sugar eliminated. At least in a case of severe diabetes observed by them, where saccharin was given to the amount of 30 grains in the course of a day, this was observed, the amount of glucose and of urine rising again when the saccharin was omitted.

J. HEDLEY, writing to the *British Medical Journal* of February 11, 1888, calls attention to a case in which a patient, who had been taking saccharin for about five days, began to complain of an abominably sweet taste constantly present in his mouth, and that everything he ate, and even the pipe he smoked tasted so sweet as to nauseate him. The writer surmises that this may be due to the fact that inasmuch as the saccharin (in part at least) passes unchanged through the system, it may be excreted as such by the saliva, and advises, consequently, that intermissions be made in its use.

ACETONURIA IN CHILDREN.

BAGINSKY (*Archiv f. Heilkunde*, vol. ix.) has demonstrated the presence of acetone in the urine of healthy children, thus showing the existence of a physiological acetonuria for children as has already been done for adults. He found that, pathologically, acetonuria stands in closest relationship to the duration and intensity of the pyrexial condition, and, experimentally too, he found that in dogs acetonuria is intimately connected with protein waste.

MICROÖRGANISMS OF THE MALE URETHRA AND OF NORMAL URINE.

LUSTGARTEN and MANNABERG (*Vierteljahresschrift f. Dermat. und Syph.*, vol. xiv. p. 905) removed, by means of a previously heated platinum spoon, portions of the secretion of the mucous membrane of the normal urethra. Among the great variety of bacterial forms found, there were two of special diagnostic interest. One was a bacillus morphologically identical with the *B. tuberculosis*, and the other a diplococcus in no wise distinguishable from the gonococcus of gonorrhœa. The bearing of this discovery upon the examination of urine for tubercle bacilli in cases of suspected tuberculosis of the genito-urinary organs is obvious. For such examinations they recommend catheterization with a sterilized catheter, since it was found by culture experiments, that urine so obtained, not having passed through the urethra, was in most cases free from microorganisms.

MICROÖRGANISMS IN THE URINE OF ACUTE BRIGHT'S DISEASE.

In three cases of acute Bright's disease the observers just cited found that the urine, though collected with the proper care in sterilized vessels, contained

quantities of a species of streptococcus, which appeared either in the form of long chains of twenty to thirty cocci, or as zoöglæa balls. The streptococcus diminished in quantity with defervescence, and increased again with each exacerbation, and they are, hence, inclined to believe that it stands in some causal relation to this disease.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

SURGEON TO THE PHILADELPHIA AND GERMAN HOSPITALS; CLINICAL PROFESSOR OF GENITO-URINARY
SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

RESECTIONS OF THE PHARYNX AND ŒSOPHAGUS.

DR. AXEL IVERSEN, of Copenhagen, in vol. xxxi. of Langenbeck's *Archiv für klinische Chirurgie*, published a monograph on "Subhyoidan Pharyngotomy," recording six cases in which he had had recourse to the operation. In three it was preliminary to a partial resection of the pharynx; in two for the extirpation of carcinomatous pharyngeal ulcers; in one for an operation on a cicatricial contraction of the œsophagus. He now adds (*Nordiskt Mediciniskt Arkiv*, No. 15, vol. 19, 1887) four new cases, all of cancer of the pharynx. He opens the pharynx beneath the hyoid. When he finds annular ulceration he thinks the radical operation requires separation of the pharynx. This is impossible without wounding the inferior laryngeal nerves. As this always results in inspiratory dyspnoea, obliging the patient to wear a tube, he removes the larynx as well, a low tracheotomy having first been performed. The œsophagus is drawn well up, divided, and a tube inserted and left in for ten or fifteen days, after which feeding is performed by means of a stomach tube. One of his first series of cases in which the microscope showed an unmistakable epithelioma, lived thirteen months, and died of an accidental complication without a sign of return; another lived fifteen months, and died of empyema, produced by the deposit in the pleural cavity of the food intended for the stomach, the tube having perforated the thinned œsophageal wall. In this case there was a little local return. Of his four new cases, one died in thirty-seven days, one in thirty hours, one in six days, one was living and well fourteen months after the operation.

Iversen comes to the following conclusions:

1. Having lost only one subject by septic trouble, he believes that iodoform should be credited with this fact.
2. He thinks two cases show the possibility of radical cure.
3. As in four autopsies there was no metastasis, he thinks that in the pharynx, as in the rectum, the neoplasm remains stationary a long time.
4. The extirpation of the larynx (as tracheotomy must surely be done at some time) is justifiable and proper.
5. Alimentation caused a gain in weight, but the atrophy of the œsophagus

which has been mentioned requires special treatment. He thinks it an atrophy from disuse, and recommends: *a*, that the patient excite reflex movements by titillation of the palate; *b*, that the tube be only introduced to the entrance of the œsophagus.

He was not altogether successful in getting his patients first to chew their food and then introduce it into the stomach by the tube, though he believes that is the proper method of feeding.

HEALING OF WOUNDS OF THE STOMACH IN RELATION TO VARIOUS SUTURES.

DR. ALFONSO POGGI, in the *Atti della Reale Accademia Medica di Roma* for 1886-87, relates a number of experimental observations which have led him to the two following series of conclusions, the first referable to the process of cicatrization, the second regarding the results obtained by different methods.

1. Raw (or freshened) surfaces of the walls of the stomach unite as speedily and firmly as those covered with serous membrane, even a little more rapidly as regards the beginning of the cicatrization along the line of section. The mucous surfaces, on the contrary, do not unite even when they have been previously freshened by curetting or by superficial excision.

2. Wounds of the stomach treated by the method of introflexion of the margins (whatever the remote effects as to the form of the cicatrix may be), give the same results as in those sutured so that the edges of the wound are simply brought together. The internal projection created by the introflexion is very slow to disappear.

3. When the loop of the suture embraces the mucous membrane with any degree of pressure, the yielding structure of the latter fails to give sufficient support to the thread until the delicate muscular layer is reached, and the little wound which results does not heal entirely by the time the suture separates. The regeneration of the mucous membrane is thus delayed, and cellular infiltration of the connective tissue occasioned.

4. In both trifling and extensive solutions of continuity of the mucous membrane, a true process of regeneration occurs. The investing epithelium is first re-formed, which, in a clean-cut wound united with accurate sutures, requires from seven to fifteen days. The epithelium before taking the form of its own proper cylindrical variety, has that of pavement epithelium; the process is, therefore, analogous to that observed in the regeneration of the tracheal and uterine cylindrical epithelium.

5. The formation of the glandular layer, on the contrary, although one observes it in the beginning of the cicatrizing process, proceeds with such slowness that months are needed for the entire reconstitution of the mucous membrane.

Dr. Poggi's second series of conclusions are as follows:

1. That all the methods of suturing resulted in cure, but that the plan of extroflexion is too slow and indirect in its action; simple juxtaposition of the edges gives a good regular cicatrix; but the method of introflexion of the edges of the wound offers the greatest security.

2. That separate suture of the mucous membrane, with the object of securing quicker healing, is not indicated in uncomplicated stomach wounds, and that

sutures of all sorts are more useful when the loop of the suture does not include the mucous coat, but takes in only the serous and muscular.

2. That for security and rapidity of action the sutures of leather should be preferred.

4. That cutgut sutures have given excellent results.

The volume of Proceedings of the Royal Academy of Medicine of Rome is a royal octavo of between three and four hundred pages, beautifully printed on fine paper, illustrated with excellent lithographs, and, both in its execution and in the character of the articles which it contains, reflects great credit upon Italian medicine and surgery.

STITCHES IN LAPAROTOMIES.

DR. SEVEREANU describes (*Archiv für Klin. Chir.*, vol. 36, 1887) his method of stitching the wound after laparotomy. He sews the peritoneum with fine catgut, brings together the muscles and aponeuroses with thicker catgut sutures, carrying these through the edges of the two peritoneal surfaces without penetrating the cavity, and, finally, with double silk threads inserts sutures through the whole thickness of the wound without carrying them into the belly.

He ties the loops of these threads over glass cylinders placed on either side of the wound (quill suture) and extending a little beyond it in both directions. He then uses a superficial suture for the edges. He claims thus the ability to loosen or tighten the important stitches according to indication, and to have the tension of the wound under control. The method seems unnecessarily complicated.

THE SURGICAL TREATMENT OF DISEASES OF THE PANCREAS.

KARL HAGENBACH (*Deutsche Zeitschrift für Chirurgie*, December 27, 1887), in an article especially directed to the complications produced by pancreatic diseases, reports two interesting cases. In one a laparotomy revealed a large retro-peritoneal pancreatic tumor, which on puncture was found to contain thin, dark colored blood. The tumor pressed upon the duodenum, and the transverse colon was compressed and occluded by a band of adhesions. This was divided, the fecal accumulation broken up and pressed onward by the fingers through the wall of the bowel, and the wound closed. Death occurred from shock in six hours.

In the second case there was primary carcinoma of the pancreas with occlusion by pressure of the ductus choledochus and enlargement of the gall-bladder. Cholecystotomy was performed, the gall-bladder being first stitched to the abdominal walls and then opened, two days later. Death occurred in collapse six days after the first operation, double hypostatic pneumonia having developed.

Hagenbach then gives a table of fifteen cases of pancreatic cysts collected from various sources. Eight of these patients were males, seven females; the ages varied from sixteen to forty-six years. The disease was usually chronic; the symptoms and even the recognizable tumor in a third of the cases having existed more than five years, and in one case for as long a time as twelve years. In only one case did the history cover a very short period—five weeks. The

chief symptoms were similar in all the cases: tenderness, pain in epigastrium, eructations, vomiting, irregularity in movements of bowels, emaciation, after which almost always there was developed a painful, elastic, fluctuating tumor in the upper abdomen, often with a pseudo-pulsation. He thinks the character of the cyst contents, as revealed by operation, deserving of attention, as Friedreich, Klebs, and Küster have thought that in cysts of the upper abdominal region the admixture of blood in the contents, as shown by exploratory puncture, is characteristic of pancreatic disease. In four of the fifteen cases there was almost no trace of blood; in six there was a little hemorrhagic staining, such as is often seen in ovarian cysts; in one the blood apparently came from an accidental venous bleeding of the cyst-wall; in two the cyst contents are simply described as "a brownish-red fluid," and the remaining two he thinks should, perhaps, be described as "hæmatoma." He has collected a number of cases of this character which seem to demonstrate that hæmatoma (or hemorrhagic tumors due to bleeding into previously formed cysts), as well as other cysts of the pancreas, can be successfully treated by incision and drainage or tamponing; while the "apoplectic" cysts, formed by circumscribed effusion of blood into pancreatic tissue which has undergone degenerative change, or is invaded by neoplasm, are not amenable to treatment. He concludes with an analysis of twelve cases of occlusion of the bowel by pressure of pancreatic tumors, and a review of the operative treatment in stoppage of the ductus choledochus from the same cause.

MICROÖRGANISMS IN HEPATIC DISEASE.

After the careful clinical and pathological study of a fatal case of jaundice and of the general subject, DR. F. CIMBALI concludes (*Lo Sperimentale*, November, 1887) that we have in the so-called *acute yellow atrophy of the liver* (a name which he claims is neither anatomically nor clinically exact) another example of the influence of microbes in producing diseases. He believes that this form of jaundice presents the same phenomena as the group of infective diseases, and that it should be included among them, and thinks the acute degeneration of the hepatic parenchyma an effect, and not the cause of the malady. He calls attention to the fact, that in many of these cases of jaundice there is no diminution in the volume or weight of the liver.

THE RADICAL CURE OF HERNIA.

M. RICHELOT, in a discussion before the Société de Chirurgie, endeavored to establish the following propositions (*Le Bulletin Médical*, 1887, p. 1183): 1. The careful separation, by dissection, of the hernial sac is essential to success, and is almost invariably feasible. 2. The same dissection is always possible in congenital hernias and hydroceles. Congenital hernias should be operated upon during adolescence, because they are exceptionally dangerous, and because at that age the result is more favorable. In *Le Bull. Méd.* of Dec. 18, 1887, p. 1343, he replies to the objections raised by his colleagues, the chief of which were, 1, that infantile congenital hernias are apt to undergo spontaneous cure; 2, that the radical cure is not without danger; 3, that it is not truly "radical." As to the first of these points, he answers that he does not recommend operation during the early years of life, but a little later, after

bandages and trusses have failed, and when active muscular exercise has begun, certainly from about the fifteenth year onward. As to the second, he claims one hundred and forty successful cases in the practice of M. Ferrier and himself. As to the assertion that the operation is not usually successful, he says that accepting the statistics of M. Socin (who reports fifty-two cases with two deaths and a return of the hernia in one-third) the operation is justifiable, especially as those hernias which do return are more simple and less dangerous than the primitive ones.

The New York Medical Journal of January 21, 1888, contains an interesting series of articles upon this subject. DR. CHARLES MCBURNEY calls the attention of those who look upon the radical operation as a dangerous one to be undertaken only in exceptional circumstances, to the fact that every patient who has a hernia is already in a dangerous condition, and continually runs a positive risk. As to the operation, he rejects the various methods which aim at producing condensation of the arcolar tissue outside of the sac, and thinks that the complete obliteration of the peritoneal pouch is the essential step of all truly "radical" procedures. He prefers *ligature* of the sac as the means of obliteration—*a*, to cutting it off and suturing it because it is more rapid, more sure, and avoids the danger of sudden expulsion of the intestines during coughing or vomiting; *b*, to twisting it, because in the latter method there is danger of a portion of adherent intestine being drawn into the twisted canal, and because rupture of the peritoneum might result from the twisting; *c*, to Macewen's plan of retaining the plicated sac, because that makes no provision for the great laxity of peritoneum around the internal ring in large hernias, and does not restore its naturally smooth surface at that point. He rejects the methods of refreshing portions of the canal and rings, and believes that we must look for strong and permanent repair to granulation of the wound, only to be obtained by treating it openly. He therefore sews together on each side of the wound (after dissecting, ligating and cutting off the sac) the various layers forming the abdominal wall, excluding of course the transversalis fascia and the peritoneum. He then packs with iodoform gauze.

DR. THOMAS H. BURCHARD gives the details of his treatment of strangulated hernias, advocates early operation, and thinks that in all cases no operation for strangulated hernia can be said to be properly and surgically performed without the final closure of the hernial canal. In the performance of the operation he thinks the clinical requirements are—1, a safe and satisfactory disposition of the sac; 2, a total obliteration of the hernial rings, and an accurate coaptation of the sides of the canal. He discusses the different methods of treating the sac.

DR. ROBERT F. WEIR believes that the mortality after ektotomy of 39 per cent. (König) and 45 per cent. (Schmidt), reported for the years 1870 to 1880, and only reduced to 36.6 per cent. (Schmidt) by the adoption of anti-septic precautions, was due to inoculation of the general peritoneum from replacement of damaged intestine or from leakage of wound secretions into the abdominal cavity through the left-open sac, the latter being the greater of the two. He believes the improvement of late years chiefly due to the removal or closure of the sac, and partly to the present habit of earlier operation. For these reasons the reports of Banks, Leisrink, and Andaregg,

give a total of 288 cases with 45 deaths, a mortality of 15.8 per cent., and an improvement of 25 per cent. This has certainly been still further reduced. In non-strangulated hernias operated upon for radical cure he had already reported a mortality of 4 per cent. in 379 collected cases. As to the treatment of the sac he is inclined to favor the operation of ligature and excision, afterward sewing up the canal. As to permanency, he gives the results of 138 cases of strangulated hernia operated on by Andaregg, Macewen, and Reichel, of which 68, or 49 per cent., relapsed. His own statistics show that in operations on free or non-strangulated hernias relapses occur in 47 per cent., hardly confirming the statement of Leisrink that the radical operation is less apt to be followed by relapse when performed for strangulated hernia. He believes that as to the particular method, and the final results, the operation may be said to be still on trial.

DRS. DE GARMO and GERSTER contribute papers on the same subject.

MR. JOHN POLAND, in *The Practitioner* for November, 1887, discusses the various methods of treatment of the sac in strangulated hernia, and sums up as follows the advantages of ligature with excision: 1. It does not usually involve increased risk. 2. It shuts off the peritoneal cavity. 3. It prevents hemorrhage into the abdomen. 4. It prevents septic peritonitis. 5. It promotes radical cure. 6. It leads to better adjustment of trusses.

DR. D. G. ZESAS reports (*Centralblatt für Chirurgie*, February 18, 1888) a case in which, after the failure by ordinary methods, a large periosteal flap was raised and removed from the tibia of a freshly killed dog, and was fastened by suture over the stump of the sac and to the surrounding tissues. The scar seemed much harder and firmer than ever before, and ten weeks after the operation there had not been a sign of a return of the hernia.

THE TREATMENT OF VESICAL CALCULUS.

In a paper on "Litholapaxy vs. Suprapubic Lithotomy in Children" (*Brit. Med. Journ.*, October 15, 1887), MR. W. J. WALSHAM compares recently published cases of these two operations with the result, he thinks, of establishing the superiority of the former method in the removal of small and moderate-sized stones from male children. He mentions as the chief points in its favor: 1. The absence of the risks attending all cutting operations. 2. The absence of all after-annoyance, from escape of urine through the wound. 3. The rapidity of cure. 4. The advantage which both operations possess as compared with perineal lithotomy, of leaving the perineal organs intact. The usual objections urged against it, are: 1. The undeveloped condition of the urinary organs. 2. The small size of the bladder. 3. The narrowness and sensitiveness of the urethra. He thinks these chimerical, and replies: 1. That the non-development of the prostate is favorable. 2. That the expansibility of the bladder of children enables it to hold a quite sufficient quantity of fluid, and to permit the efficient working of a small lithotrite. 3. That after incising the meatus he has never met with any difficulty in children from three to six years of age in passing a No. 6 or 8 English (13 or 16 French) lithotrite or catheter, and in boys from eight to ten years of age, a No. 10 or 11 (18 or 20 French) will readily be admitted. He gives the following rules as specially applicable to litholapaxy in children: *a.* The litho-

trite should be fully fenestrated and the female blade well bevelled. *b.* The evacuating catheter should be furnished with an accurately fitting stylet in order that any fragment fixed in the eye may be displaced before the catheter is withdrawn. *c.* The meatus should be incised and no force used. *d.* Crushing should be thorough, evacuation (with a *small* aspirator) complete, and instruments withdrawn and reinserted as seldom as possible.

DR. WARD COUSINS and MR. CORLEY endorsed his views.

SURGEON-MAJOR B. C. KEELAN reports (*Ibid.*) 188 cases of stone operated upon by lateral lithotomy. Among 105, under twenty-five years of age, there were no deaths. Among the remaining 83 cases, from twenty-six to seventy years of age, there were 8 deaths. Lithotrity at the Hyderabad Medical School is reserved for soft small stones, and suprapubic lithotomy for stones too large to be removed through the perineum, the author's experience in a few cases not having been favorable, and the operation appearing to him "nearly as formidable an undertaking as the Cæsarean section." In delivering the stones he recommends that the operator stand on a chair, as the traction cannot be made in the right direction (upward and forward) if he stands in front of the perineum. Resisting bands should be cut, not torn. In children, under five years of age, it is dangerous and unnecessary to introduce the finger into the bladder. A grooved director may be introduced into the bladder through the perineal wound, and the forceps passed along it. (The writer assisted Dr. D. Hayes Agnew in a lithotomy in which he successfully used this method some months ago.) In only 4 of the 188 cases was there troublesome hemorrhage, and in these it was controlled by a pad of carbolized tow placed over the lips of the wound, previously brought together and held there by a strong man. He concludes by asserting the improbability that lithotrity or suprapubic lithotomy will ever supersede the lateral method, and maintains that the asserted dangers are anatomical and theoretical, not surgical, that the transverse perineal, long perineal, and bulbar arteries are insignificant, and that the pudic, the only large artery of the perineum, is protected by the tuber ischii.

DR. ROBERT CRAN reports (*The Lancet*, Dec. 31, 1887) his first case of suprapubic lithotomy, in which the patient was in the hospital forty-two days, his longest period previously, by lateral lithotomy, having been twenty-three days.

SURGEON-MAJOR P. J. FREYER reports (*British Medical Journal*, Dec. 24, 1887) 100 cases of operation for stone without a death. Of these 16 were litholapaxies in male children. Although he has had 165 lithotomies in patients below sixteen years without losing a case, he believes litholapaxy a safe and justifiable operation, possessing the great advantages of rapidity of cure and avoidance of cutting. He names the following points as noticeable in regard to the operation on male children: 1. A more variable capacity of the urethra, as compared with adults. 2. Greater need for delicacy, and especially for experience in operating. 3. Greater slowness of operation, as stone must be ground very fine to enable it to pass through the small evacuator. 4. Greater danger of leaving behind fragments, as the stream is small and not so forcible. 5. Difficulty in passing instrument, greatest in first two inches of urethra. 6. Difficulty in reintroduction owing to rapid congestion of mucous membrane. 7. Almost invariable necessity for slitting meatus. 8. Greater danger of

forcible introduction of instrument. He looks on suprapubic lithotomy as a "necessary evil," to be had recourse to only in cases in which neither litholapaxy nor lateral lithotomy can be performed.

VON DITTEL (*Wiener med. Wochenschrift*, Nos. 42-46, 1887) calls attention to the danger attending dilatation of the bladder with air or fluids as preparatory to suprapubic lithotomy. He made experiments on the dead bodies of twenty persons, varying in age from two to seventy years, and came to the following conclusions: 1. Injections of the bladder with air or fluids can produce rupture. 2. Even seven ounces of fluid, or quantities insufficient to raise the bladder above the symphysis, may cause this. 3. Certain conditions, such as cicatrices, diverticuli, ulceration, etc., predispose to this, and such conditions cannot be diagnosed beforehand. The method of raising the bladder above the symphysis for suprapubic operations by injections, therefore, in some cases causes imminent danger to the life of the patient. (*The London Med. Record*, Nov. 15, 1887.)

LANGENBUCH has suggested a subpubic method of reaching the bladder which is described in *The Med. and Surg. Reporter* of Jan. 14, 1888. He has never practised it, and as it involves a possible necessity for chiselling away the lower portion of the pubic bone, and a counter-incision through the perineum for drainage, it does not seem to have much to recommend it.

DR. EDMUND ASSENDELFT concludes, in vol. 36 of the *Archiv für klin. Chirurgie* (p. 498), his record of 102 cases of high operation for stone. Two cases died, but one, aged four, from general marasmus, intestinal ulceration, and purulent bronchitis. His mortality, therefore, was about one per cent. The cases are reported with considerable detail.

AFFECTIONS OF THE EXTERNAL ILIAC GLANDS CONSECUTIVE TO INGUINAL BUBOES.

M. E. ÖDMANSON (*Nordiskt medicinskt Archiv*, Häft 2, 1887), after alluding to the mémoire of Clerc upon the enlargement of the iliac glands in certain strumous conditions and to the observations of Fournier, who in three autopsies found multiple iliac adenitis in persons suffering with primary syphilis, describes a series of cases of adenitis and peri-adenitis of these glands with reference to the different forms and situations of the buboes which provoked them. In another series of six cases suppuration of the glandular tumor or considerable swelling of the whole iliac region occurred.

The group especially involved is that immediately behind Poupart's ligament. He describes with some detail the diagnostic points and the indications for treatment.

THE TREATMENT OF CAROTID HEMORRHAGE.

MR. FREDERICK TREVES, believing that the ligation of main arteries for the arrest of bleeding in distant parts is often somewhat blindly advised, and thinking that it is not always desirable permanently to occlude a main artery in order to bring about an arrest of circulation in one of its branches, exposed in four cases the common carotid, in the usual way, and passed around it a thick piece of soft catgut tied in a loose loop. By pulling upon this loop the circulation through the vessel could be temporarily arrested. The cases

were wound of superior thyroid, of external carotid, of internal carotid, and a case of malignant tumor of the neck, in which tension of the catgut arrested the bleeding during the operation. He thinks that by this procedure the advantages that attend compression of an artery or the temporary closure of its lumen in the case of a limb may be secured for the carotid district. Antiseptic precautions minimize the risks. As to the possibility of damage to the coats of the vessel or the risks of the temporary occlusion, he thinks time and further experience will have to decide.—*The Lancet*, Jan. 21, 1888.

THE TREATMENT OF VARICES BY LIGATURE OF THE INTERNAL SAPHENOUS VEIN AND EXTIRPATION.

After a brief review of the results obtained by Schede, Annandale, Madelung, Langenbeck, Fry, and others, in extirpating varices, M. ED. SCHWARTZ details (*Rev. Gén. de Clin. et de Sper.*, Feb. 2, 1888) three cases in which he tied the internal saphenous vein at two or three different places, dividing it between ligatures, the indications being in one case a very painful varicose swelling at the inner border of the knee, in another an extensive ulcer, in the third great varicose enlargements of the leg. In the one first mentioned, the venous tumor, having become hard and firm from thrombosis, was enucleated three days after the ligation of the vein. Eight months later there was no serious return of trouble. The ulcer, which was two by two and a half inches in size and had persisted for six months, resisting other treatment, healed in eight days. Five months after, the cure remained complete. The third case did not report for observation, but the immediate result was a complete cure.

M. Schwartz believes with Langenbeck that, in these cases as in the operative treatment of hernia, a long time must elapse before a "radical cure" can be claimed, but thinks it safe to say that the multiple antiseptic ligation of varices and even their extirpation when they form painful tumors is strongly indicated, especially when the means usually adopted have proved ineffective and the patients are not much beyond middle age.

THE ANTISEPTIC INJECTION OF INFLAMED JOINTS.

HAGER strongly advocates (*Deutsche Zeitschrift für Chirurgie*, vol. xxvii., 1887) the early use of antiseptic injection in a variety of cases of arthritis. He has used various liquids, but employs 1:20 carbolic acid solution or 1:1000 sublimate solution, according to the character of the inflammation. He believes that a portion of the good effects realized from the use of the former fluid is due to its astringent property, and cites the practice of Dr. Schede, who has used it as an intra-articular injection in cases of habitual luxation of the shoulder-joint, and with excellent effect. He has himself cured a case of the well-known troublesome relaxation of the temporo-maxillary joint by a series of carbolic injections into the articulation, inserting them between the condyle and the zygoma, while the mouth was widely opened.

Of 100 cases of *hydrops articuli* of the knee, a cure resulted in all but one, who died of pulmonary tuberculosis a few weeks afterward. In only four instances was it necessary to repeat the injection and washing of the joint,

although in nearly fifty per cent. of the cases the disease had existed for from one to ten years.

Gonorrhœal arthritis he divides into two groups: 1. Those cases in which there is a pronounced exudation into the joints; 2. Those in which there is intense periartthritis with but trifling fibrinous effusion. His results were, as might be expected, especially good in the first class of cases, nine of which he treated by the injection method. In those of the second group they were, at least, as satisfactory as those attained by the usual methods. He details other cases of rheumatic, tuberculous, and fungous forms of arthritis of various joints, in which more or less complete cures were obtained in relatively very short periods of time. He dwells, in conclusion, upon the simplicity and safety of his method of treatment, which, even in those cases that might have been curable by other means, shortens the time required, and immediately relieves the joint of effusion which often persists for years. In other cases incision and drainage would have been thought justifiable, but puncture and washing out answered the same purpose, with much less difficulty and danger.

The operation is performed as follows: The region is cleaned and made absolutely aseptic; a trocar is introduced into the joint, together with a canula fitting the syringe to be employed. After it is evident that it has entered the cavity, the trocar is withdrawn, the fluid evacuated, and the antiseptic solution injected forcibly and repeatedly until it issues clear and free from all mixture with blood or pus. It should be thoroughly diffused so as to come into contact with the inner surface of the capsule at every point. Strong flexion and extension, made while the trocar opening is closed with the fingers, and the joint half filled with fluid, aid in bringing this about. Some caution is necessary in performing this part of the operation, as it has happened to as distinguished a surgeon as Billroth to lose a patient by carbolic acid poisoning from penetration of the intermuscular spaces of the thigh by the liquid forced out of the capsule by too vigorous movement.

The little puncture is covered with an antiseptic dressing and the joint immobilized for eight or ten days, after which, at a time depending on the severity of the case, passive motion is begun. He gives details as to the best points of entrance of the various joints. The paper is a valuable contribution to this branch of surgery.

LOOSE BODIES IN THE JOINTS.

KÖNIG (*Deutsche Zeitschrift für Chirurgie*, 1887, vol. xxvii.), after a description of three cases of movable bodies in the elbow-joint, and after describing the dissections of five joints in cases of arthritis deformans and others in which free bodies existed, comes to the following conclusions: 1. The formation of a loose body in a joint as the result of a separation of a portion of the joint surface through injury is relatively rare, and is conceivable only where the force is very severe. 2. As a result of such great force, a portion of the joint surface may be torn off through its ligamentous attachments; or a whole section of the articular surface—as, for instance, the head of the radius or that of the femur—may be broken off through leverage as well as through crushing force. It is practically impossible that flat pieces could be separated in this way from the articular extremities of bones without giving rise to some injury of the joint itself. 3. It is, however, quite conceivable that such

portions of bone could be so badly contused by traumatism as to become necrosed and separated through inflammatory processes. 4. There is an idiopathic dissecting osteochondritis which, without noteworthy injury to a joint, gives rise to separation of portions of joint surface. A large number of cases of movable bodies in joints, until now believed to be traumatic in their origin, have arisen in this way. 5. The etiology of this supposed pathologico-anatomical process is at present unknown.

MALIGNANT TUMORS OF THE UPPER JAW.

DR. W. T. HELMUTH reports (*Annals of Surgery*, December, 1887) five cases from which he believes the following clinical deductions may be drawn, without regard to the microscopic examination:

1. Giant-celled sarcomas (myeloid tumors) are prone to affect the upper jaw more frequently than any other malignant growths.
2. The subperiosteal tumors are in their early stage difficult to diagnose from the ordinary epulis.
3. Sections of the latter are much firmer than the former and contain more fibrous tissue.
4. Cut surfaces of myeloid growths resemble very closely sections of bits of marrow or suet.
5. Myeloid tumors do not bleed readily—in fact, can be handled almost with impunity so far as bleeding is concerned.
6. The integument covering sarcomas of the jaw does not infiltrate, marking a strong clinical contrast in this respect to carcinoma.
7. The integument covering sarcomas of the jaw is liable to inflame, and suppuration and ulceration to ensue from distention and pressure of the diseased mass beneath. This complicates the diagnosis.
8. The fibroid epulis is liable to degenerate and at each recurrence to become more malignant.
9. In the majority of cases sarcomas of the upper jaw are very liable to destroy life, death generally occurring from asthenia.
10. The earlier and more complete the excision the longer the period of immunity.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,

PROFESSOR OF OTOTOLOGY IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE, ETC.

CHRONIC SUPPURATIVE OTITIS MEDIA.

In a paper of this title, read at the meeting of the Otological Section of the American Medical Association, June, 1887, DR. S. S. BISHOP, of Chicago, seems to start out with an erroneous impression as to the true form in which the so-called "dry treatment" is to be carried out.

Your reporter has never yet seen any authority recommend hermetical closure of the external auditory canal by means of insufflated powders. Yet this asserted feature in the treatment is constantly brought forward by those

who desire to condemn the method of dry treatment, which really consists in gently dusting or insufflating just enough powdered boric acid to cover lightly the exposed mucous membrane of the drum cavity and the membrana tympani.

No good can be obtained by tamponing the external ear with any substance; it has never been recommended by any authority on otology; and no bad result has ever arisen from the gentle and conservative use of insufflated boric acid, or boric acid with iodoform (one of the latter to seven of the former), as has been fully explained by numerous authorities. If the method will be misunderstood or misrepresented, those who approve of it have nothing to do with confuting false conclusions drawn from erroneous premises.

TREATMENT OF OTORRHOEA WITH POWDERED BORIC ACID.

DR. L. STACKE, of Erfurt (*Deutsche med. Wochenschrift*, December 8 and 15, 1887), very justly claims that in some cases of acute otitis media, after either spontaneous or surgical perforation of the membrana tympani, the insufflation of boric acid in powder, or of any other powdered substance, is not well borne by the inflamed mucous membrane of the middle ear.

Antisepsis of the middle ear in acute suppuration cannot be carried out like antisepsis elsewhere in the body, on account of the resentment shown by the mucous membrane of the tympanic cavity to the ordinary antiseptic fluids.

Insufflations of boric acid in powder act best in large perforations of the membrana tympani, because they can then better reach the diseased mucous membrane, and there is also less danger of clogging the drum cavity and engendering retention of pus.

In perforations of the membrana flaccida or Shrapnell's membrane, with purulent disease of the attic of the tympanic cavity, powder insufflations are insufficient treatment. In such cases the tympanic syringe must be inserted into the perforation and the attic washed out with carbolic acid solutions (2½–5 per cent.), or with peroxide of hydrogen, and *not* by means of syringing from the meatus, as the writer suggests, after "widening the perforation with the galvanocautery." If this will not meet the indications, the carious malleus may be excised.

Insufflations of powdered boric acid accomplish most in those cases "with little secretion; large perforations in the membrana vibrans; smooth, ungranulating mucous membrane; and absence of disease of the bone, or any symptoms of retention of pus."

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF
J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

SOFT DRAINAGE TUBES IN TRACHEOTOMY IN PLACE OF METALLIC CANULÆ.

DR. SCHMIDTMAN, of Wilhelmshaven (*Deutsche med. Woch.*, No. 49, December 8, 1887), claims to avoid much of the trouble after tracheotomy due to irritation of the mucous membrane from hard canulæ, by substituting soft rubber drainage tubes adjusted to the calibre of the trachea. The sides of the tracheal incision are separated by threads inserted into the walls, drawn back and tied, so as to prevent any occlusion of the soft tube by resiliency of the sides of the incision. The soft tube is secured by threads on each side passed through its substance, and which are retained in place by adhesive strips. It is stated that when the tube fits the trachea it cannot be expelled in the most violent paroxysms of coughing. The tubes are retained in position for three days before they are removed, and then there is no difficulty in replacing them through the well-formed fistula. Should they be removed before this time they can be replaced with the aid of dressing forceps to pinch the sides of the orifice together. It is said, too, that the formation of coriaceous crusts which occlude the tube is much less than with metal tubes, and that as there is no impediment to the currents of expiration by striking the plate of the canula, emphysema is not likely to occur from escape of air into the connective tissue. The advantages of soft rubber tubes over the ordinary rigid tubes are thus summed up: 1. Accurate adjustment in accordance with the anatomical conditions of each case. 2. Occlusion of the trachea above the tube. 3. Greater calibre of the tube. 4. Diminished irritation of the soft parts. 5. Auto-fixation of the tube. 6. Diminished formation of crusts. 7. Less frequent changes of tubes. 8. Readiness of appliance and cheapness.

LARYNGECTOMY IN CARCINOMA.

DR. RUSHTON PARKER, of Liverpool, reports (*Berliner klin. Woch.*, Jan. 9, 1888, p. 26) a case of at first partial, and later, complete extirpation of the larynx for carcinoma, followed by recurrence and death.

A man, æt. thirty-nine, with a papillary tumor, supposed to be an epithelioma, almost filling the larynx, was tracheotomized February 22, 1887. On March 15th, under chloroform, the left half of the thyroid cartilage and the epiglottis were removed, together with as much of the infiltrated pharynx and tonsil of that side as was involved in the tumor.

On May 24th, another portion of the larynx was removed in consequence of recurrence, and on June 22d the remainder of the larynx, the adjacent

portions of the pharynx and œsophagus and the lymphatic glands in the sub-maxillary region and along the carotid to the base of the skull. Rapid recurrence again ensued with vomiting, cough, and suffocative attacks, rapid emaciation, and death on August 30th.

THE DANGER OF CHLOROFORM IN TRACHEOTOMY FOR EXTENSIVE GROWTHS IN THE LARYNX.

IN DR. RUSHTON PARKER'S report of a tracheotomy preliminary to laryngectomy for carcinoma (see under laryngectomy), cyanosis and pulselessness were so marked after administration of chloroform that the operation was almost about to be abandoned under the belief that death had taken place, when a feeble pulsatory elevation of the thyroid isthmus led the operator to incise the first ring of the trachea, and thus save the patient's life.

STENOSIS OF THE LARYNX.

DR. THOST, of Hamburg (Zur Behandlung der Larynxstenosen mit Krankenvorstellung; *Deutsche med. Woch.*, No. 46, Nov. 17, 1887), exhibited to the Aerztlicher Verein zu Hamburg, two patients treated by Schrötter's method, one of whom had become able to dispense with the tracheal canula. Tracheotomy had become necessary during severe typhoid fever. In this disease laryngeal ulcers occur which lead to œdema, or which penetrate more deeply and excite perichondritic processes which render tracheotomy necessary. There are four forms of ulcers: 1. Characteristic typhic ulcers analogous to the process in the intestine (Rokitansky). 2. Secondary diphtheritic ulcers which are the most frequent and which occur likewise in the tonsil and the pharynx. 4. Ulcers of decubitus principally at the close of the typhus, and due to debility. 4. Mycotic ulcers (Eppinger) which occur in the epiglottis and vocal bands, oval or circular, usually small without inflammatory areola. They are due to microorganisms which penetrate deeply, micrococci and a sort of bacillus which destroy the cartilages, chiefly the vocal process. According to E. Fränkel they are not identical with the bacillus of typhoid described by Eberth-Gaffky.

CASE I.—F. W., aged thirty-four, laborer, took ill September, 1886. Severe typhoid with bronchitis and intestinal hemorrhage. Toward end of October infiltration of hyoid bone, dysphagia; after eight days, hoarseness; on November 30th, dyspnœa, which increased and rendered tracheotomy necessary in the ninth week. A diphtheritic process extending to the pharynx was inferred. Middle of January, vocal bands and arytenoid movable; severe infiltration of laryngeal mucous membrane leaving a narrow slit-formed passage. Granulations of upper portion of tracheal wound almost occluding the trachea. Destruction of granulations with electric cautery. Frequent interruptions of treatment by œdema of arytenoid, intestinal diarrhœa, and other conditions. Introduction of bougies, No. 10, every evening and allowed to remain until morning.

Introduction of Störk's dilatation canula during the day.

CASE II.—Merchant, aged twenty-one. Tracheotomy toward the end of eighth week. Slow convalescence. Immobility of right side of larynx; chronic infiltration of laryngeal mucous membrane; granulations at upper

angle of tracheal wound. Granulations destroyed with electric cautery, and later with Schrötter's forceps through the mouth. Dilatation with Schrötter's three bladed dilator. Introduction of Störk's dilating canula. Use of bougies up to the largest (No. 20). Introduction of Schrötter's hard-rubber tubes. On removal of canula (April 4th) great retraction of tracheal cicatrix rendering reopening of trachea necessary on the third day. Introduction of thick tin bougies and the thickest hard-rubber catheter (No. 12) three times daily for forty-five minutes. Patient readily learned to introduce them. June 30th, removal of canula. The wound closed rapidly. Patient breathes easily, speaks with hoarse but audible voice. Introduces the catheter daily.

Before the treatment the nose was affected so that there was neither secretion nor smell, but it became normal again.

It was supposed that an ulcer from decubitus had occurred in this case which was localized on the right arytenoid cartilage and had led to perichondritis, and which healed with ankylosis of the right crico-arytenoid joint.

EXTRINSIC STENOSIS OF THE LARYNX FROM GOITRE.

DR. GEORGE H. BOSLEY reports (*New York Medical Journal*, January 28, 1888) a case of laryngeal stenosis due to compression by goitre, the address shown in the management of which, in an emergency threatening immediate death by suffocation, commands our especial admiration and commendation. Briefly: A girl, eighteen years of age, had a goitre of moderate size which at night frequently gave rise to suffocative paroxysms. On one occasion she was becoming rapidly asphyxiated in the doctor's presence when, with rare decision, he promptly made an incision into the trachea through the goitre, and undeterred by hemorrhage passed the handle of his scalpel through and then turned it crosswise to dilate the wound. No air entering he cut off the end of his Jacques catheter and pushed it through an obstruction lower down. Breathing having ceased, artificial respiration was successfully instituted while the father was, by order, compressing the bleeding vessels with his fingers; after which a catheter of larger calibre was procured and introduced, and, subsequently, a long Koenig tracheal canula was inserted. Eight months later its removal was followed by immediate collapse of the trachea necessitating reintroduction. Meanwhile the goitre was being treated with injections of tincture of iodine, while calcium lactophosphate was administered in the hope of hardening the tracheal rings. The long tube was exchanged for a short one at about the fifteenth month after the incision of the trachea, and this was permanently withdrawn about one month later, the neck having become of normal size and the trachea and larynx perfect on laryngoscopic inspection.

LIGATURE OF BOTH LINGUALS, FOR CONGENITAL MACROGLOSSIA.

DR. FEHLEISEN, of Berlin, reports (*Berliner klinische Wochenschrift*, No. 50, December 12, 1887) great improvement in a child operated upon at thirteen months of age by Pirogoff's method. While the tongue at the end of a year had not receded to the usual size, considerable reduction had taken place so that it no longer protruded beyond the teeth, and the patient was able to speak single words. Inasmuch as even excision of a triangular seg-

ment of the tongue is not always successful, Dr. Fehleisen contends that the safety of this method of operating recommends it for further trial.

THE USE OF A STATIONARY CANULA IN TREATING CARCINOMATOUS STRICTURE OF THE ŒSOPHAGUS.

In an address by DR. E. LEYDEN and DR. RENVERS (*Deutsche medicinische Wochenschrift*, No. 50, December 15, 1887) before the Medical Society of Berlin, two patients with carcinomatous stricture of the œsophagus were exhibited to illustrate the unusually favorable results obtained with the use of a canula introduced through the stricture and retained in position, according to J. Symond's method (*British Medical Journal*, April 22, 1887) somewhat modified and improved. One patient, a female, wore for six months a tube, about the size of a goose quill, and her œsophagus became again thoroughly permeable for fluids. The food introduced was fluid only, for solid nutriment, no matter how finely divided, readily plugs the tube. On April 25th, the patient weighed 42.5 kilograms, and, after losing one kilogram during the earlier portion of the treatment, increased in weight to 43.46; by June, to 46; by August 2d, to 49.60; 60 by October 22d, and to 49.16 by November 2; in all, nearly 8 kilograms, or 16 pounds.

The other patient, a male, did still better. He is a smith, fifty years of age, and was admitted June 13th with marked carcinomatous stricture of the œsophagus. He soon increased in weight, and was discharged at his own request on August 8th, wearing the tube; having gained seven kilograms within less than two months. He resumed work, but at the end of September wrote an urgent letter stating that his tube was clogged and asking what should be done. He was told to withdraw the tube. On doing so, he found that he could get no nourishment through the stricture. He returned to the hospital October 3d, having lost about ten kilograms in weight. It was impossible to pass the stricture for several days, during which time nourishment per rectum was resorted to several times a day. An œsophageal tube was eventually passed through the stricture and allowed to remain in position for several days, when it was withdrawn and replaced with the permanent canula. In seven weeks the weight increased from forty-eight to sixty kilograms, or at the rate of about half a pound a day.

How long life may be prolonged by this method of treatment is as yet uncertain. Experience teaches that patients perish from inanition in ten months, or thereabout, as the rule. In the two patients exhibited nourishment had been maintained for seven months with increase of weight, a general sense of feeling well, and without any evidence of material progress in the disease threatening life in other directions.

The canula employed is funnel shaped. When the stricture is not more than an inch and a quarter in length and is situated in the lower and middle thirds of the œsophagus, the best canula is one of hard rubber, an inch and a quarter to two inches in length, which is passed through the stricture by the aid of two silken loops at the side, which serve likewise for its withdrawal when requisite. When the stricture occupies the upper third of the œsophagus, especially in the region of the cricoid cartilage, or when it is more than one or two

inches in length, elastic canulæ are preferable, but they have the disadvantage of undergoing softening, and have to be renewed frequently. Preliminary treatment of the œsophagus must precede their use in order to restrain the disintegration of the mucous membrane, and the dilatation above the stricture. The patient is, therefore, nourished by the bowel for several days in order to keep decomposing particles of food from the ulcerated places; and during this period the dilated portion of the œsophagus and the ulcers are cleansed with antiseptic solutions. If the stricture is found permeable, or made so by careful dilatation with bougies, a whalebone guide is used with an ivory obturator adjusted to the lower opening of the canula, and a second obturator at the upper opening than which it is somewhat larger. This is secured to the canula by two silk loops passing through the adjacent perforations in the edge of the canula, and the whole appliance is manipulated like the ordinary œsophageal bougie. The point to which the sound can be carried without hindrance is marked on the handle of the staff, and when this has been reached the funnel-shaped canula is passed into the stricture. The thread is then removed from the staff, and the staff is loosened a little and then carefully withdrawn from the canula and from the œsophagus. The canula remains in the œsophagus, and the ends of the threads attached to it are outside the mouth. These are tied around the ear, and may eventually be carried through the nose with benefit.

If an elastic tube is used it is passed, after the method of Symond's, by means of a long, thin, whalebone staff over which an elastic bougie is so arranged that it can be fixed at any point by means of a screw. The whalebone sound is passed through the elastic funnel-shaped tube so far as to occlude the lower orifice, and then the bougie is pushed as far as possible into the funnel-shaped upper orifice, and fixed with a screw, when the appliance is manipulated as before.

Renvers has found it advantageous to flatten the canula a little transversely so as to facilitate its passage past the rigid cricoid cartilage.

If there be no stricture below it, the patient is in a condition to swallow considerable quantities of fluid nourishment successively as soon as the canula is in place.

Should the canula become occluded it is withdrawn by means of the silken loops attached to it, as it also is when in consequence of dilatation a larger permanent tube is to be introduced.

The hard rubber tube can be worn uninterruptedly as long as six months; the elastic ones for about four weeks. With the material at present used for these tubes Renvers recommends that they be not used longer than fourteen days lest they soften so much that the thread tears through them. Should such a thing happen it would be necessary to push the tube down into the stomach.

In removing the tube from the œsophagus the tug on the thread must be made in the long axis of the tube. The patient should sit on a low stool. The left forefinger should be carried to the pharynx, and the thread be brought over the tip of the finger, which should then exert upon the thread a slowly increasing pull upward. The tubes are usually firmly imbedded in the stricture, but once loosened readily follow the tug.

OBSTETRICS.

 UNDER THE CHARGE OF

 EDWARD P. DAVIS, A.M., M.D.,
 OF PHILADELPHIA.

 FATAL INTOXICATION FROM DILUTE SOLUTIONS OF BICHLORIDE OF
 MERCURY.

STEFFECK, of Hofmeier's Clinic at Giessen, reports in the *Centralblatt für Gynäkologie*, No. 5, 1888, the following case which is instructive as an instance of fatal intoxication after the use of but two intrauterine douches of weak solutions of mercuric chloride.

The patient was a multipara, who miscarried at five months with a macerated foetus. Her antiseptic treatment consisted in a bath on admission to the hospital; cleansing of the external genitals with 1 : 1000 solution of bichloride of mercury; and vaginal douches of 1 : 3000 bichloride solution given once daily, in quantity of one quart, during the five days in which her miscarriage occurred. The placenta was retained after the expulsion of the foetus; as hemorrhage persisted to some extent the vagina was tamponed with iodoform gauze. After the placental retention had persisted for more than twenty-four hours, the patient was anesthetized, the customary vaginal douche given, an intrauterine douche of one quart of 1 : 5000 was used, the placenta removed, and an intrauterine douche of one quart of hot mercurial solution, 1 : 5000, was employed to check the hemorrhage; ergotin was also administered.

One hour after the removal of the placenta pronounced symptoms of mercurial enteritis supervened, followed by stomatitis and acute nephritis, with anuria. Death occurred in seven days after poisoning. The post-mortem examination revealed dysenteric enteritis, acute parenchymatous nephritis, with slight emphysema and pulmonary oedema. The intestinal lesions were so pronounced as to be typical.

Steffeck ascribes the poisoning to the intrauterine douche which was given after the removal of the placenta, when he thinks that the mercurial entered the circulation directly through the placental site. In view of the dangers of intrauterine douches of bichloride of mercury, their use has been abandoned at the clinic at Giessen. Vaginal douches only, of bichloride solution, and these preferably before labor, are now permitted.

In commenting upon his case, Steffeck emphasizes the fact that every precaution was taken to empty the uterus after the douche, and that uterine contraction after the expulsion of its contents was excellent. The cases reported by Fleischmann and von Herff are somewhat similar, but not so striking examples of direct intoxication.

 CREOLIN, AN INNOCUOUS ANTISEPTIC.

KORTÜM, in the *Centralblatt für Gynäkologie*, No. 6, 1888, reports that he has extended his clinical studies in the use of creolin, and now urges a trial

of its virtues upon obstetricians. He considers it of especial value for two reasons: it is hæmostatic, it is innocuous.

In cases of ruptured perineum he obtained especially good results by placing compresses saturated with a one-half per cent. solution on each side of the stitches, and irrigating the parts freely with the same solution. Perineal wounds so treated healed with less irritation than any he had ever observed. He has also used tampons, saturated with a two per cent. solution of creolin, to check hemorrhage, and found that they could remain for from twelve to twenty-four hours *in situ* without any evidence of decomposition. Creolin does not irritate the hands, and may be given to nurses and patients for use during the lying-in period without fear of intoxication.

[In addition to Kortüm's experiments, Neudörfer has used creolin in general surgery at his clinic in Vienna with the best results. He found that it relieves pain, checks hemorrhage, and limits suppuration. He considers a one-half per cent. solution efficient, which he made freshly for each application by adding two drops of creolin to six ounces of water. The result is a milky fluid, resembling somewhat carbolic acid in odor. Creolin is a sort of tar, obtained from English pit coals by dry distillation and from which the poisonous hydrocarbons have been eliminated; its chemical constitution is not yet established. Inquiry for creolin disclosed the fact that it is not commonly for sale in the American market; a recent number of the *Druggist's Circular* mentions it as a well-known English proprietary article. "Little's Soluble Phenyle" is a preparation in common use in England, corresponding in many points to creolin, and is obtainable in this country. A more elegant and expensive preparation is "Coal-tar Saponiné," made by Pharmacist Le Beuf, of Paris. This is in extensive use in the Paris hospitals, and in the French army and navy. It is evident that while the well-known "Phénol Sodique" has been found convenient in private obstetric practice, it does not present all the advantages claimed for creolin.—ED.]

SPONTANEOUS EVOLUTION OF FACE PRESENTATION INTO VERTEX PRESENTATION.

FRÖMEL reports, in the *Wiener medizinische Presse*, No. 7, 1888, the following case from the obstetrical wards of Professor Breisky:

A multipara, whose previous labors had been normal, presented, when admitted to the hospital, the following points of clinical interest: Examination of the pelvis showed a slight contraction of the external diagonal conjugate; the promontory of the sacrum was readily reached; the uterus was deflected to the mother's right side; the back of the child was on the mother's left side, the face presented, the forehead being on the left side and the chin directly opposite, upon the right; the head was high in the pelvis, and freely movable.

The patient was ordered to lie on her left side, to rectify the position of the uterus. Three hours after the first examination the membranes ruptured spontaneously, and the vertex presented, in first position, with the right arm. While efforts were being made to replace the arm, delivery occurred spontaneously.

Frömel considers that the following predisposing causes of face presentation

were present in this case: The patient was a multipara; the uterus was deviated from its normal position, toward the mother's right side; the head was large, and, while the membranes were intact, it remained obliquely at the superior strait, its posterior circumference resting against the left ilium; the occiput thus encountered greater resistance than the forehead, which descended first; prolapse of the arm was present; the head was large, but not dolichocephalic; the liquor amnii was abundant. The evolution of the face into the vertex presentation was effected by the contraction of the distended uterine muscle upon its left side, and favored by the position which the patient assumed, lying on her left side.

TWO PORRO OPERATIONS FOR ATRESIA VAGINÆ; RECOVERY.

At a meeting of the Society of German Physicians of Prague WEYDLICH reported two successful Porro operations, as follows:

The first was performed upon a primipara, thirty-two years old, who had scarlatina severely when eleven. Two years previous to the operation she was treated in the hospital for wounds of the vagina following coitus. Although an operation to restore the lumen of the vagina was urged upon her then, she refused, and was finally brought to Schauta's wards approaching the end of pregnancy. Atresia vaginæ was almost complete; the os uteri was partly dilated; the head was partially impacted in the pelvis. The Porro operation was performed, with the use of the elastic ligature. But little difficulty was experienced in extracting a well-formed child, which lived. The uterine stump was treated extra-peritoneally, and strict antisepsis was observed.

The cause of the atresia was, first, the diphtheritic inflammation of the vagina caused by scarlatina, aggravated by the traumatism produced at coition. On the fortieth day after the operation the patient was discharged cured.

The second case was that of a multipara, aged forty-two years, who had been severely injured in a previous confinement. She came to the hospital stating that labor pains had already begun, and that foetal motion had not been felt for eight days. Atresia vaginæ was complete, but the cicatricial tissue was broken down by a sound to some extent. It was intended to dilate the vagina by Hegar's dilators, and perform Sänger's operation. When the uterus was opened, and the partly decomposed foetus extracted, the endometrium was found to be covered with a layer of septic material, which made the amputation of the uterus imperative. The patient's temperature, which had been elevated, sank to normal under antiseptic treatment, and she was discharged from the hospital forty-two days after operation.

Porro's operation was made necessary in these cases by the impossibility of securing drainage through the vagina, and, in one instance, by the septic condition of the endometrium.

In the discussion which followed SCHAUTA called attention to the fact illustrated by the first case, that the impaction of the presenting part is not a contra-indication to Porro's operation, as a living child was extracted without great difficulty.—*Wiener medizinische Presse*, No. 6, 1888.

TWO CASES OF LABOR COMPLICATED BY SHORT UMBILICAL CORDS.

FELKIN, in the *Edinburgh Medical Journal* for February, 1888, reports two cases of short cords, complicating labor very considerably.

The first occurred in a primipara, who expelled a female child with the placenta after a labor lasting thirty-six hours. Profuse, but brief, hemorrhage followed the expulsion of the placenta. The cord was inserted into the edge of the placenta, and measured five and three-quarters inches in length.

The second case was that of a multipara, whose previous labors had been easy. During the pregnancy in question the patient complained of persistent sacral pain, attended at times by severe abdominal pain. The liquor amnii was very abundant. The child was readily expelled, having the cord wound five times about its neck and once about its chest; although asphyxiated, it was resuscitated. The uterus inverted at the birth of the child, and it was found that the attendant had divided the cord very near the placenta, which was adherent. The removal of the placenta and the reposition of the uterus were easily effected, and without severe hemorrhage. It was evident that the shortness of the free portion of the cord had inverted the uterus. Both patients made good recoveries.

A CASE OF KYPHOTIC PELVIS.

BREWIS (*Ibid.*) reports the case of a primipara, aged thirty-three years, having kypho-scoliosis of the dorso-lumbar region, the result of a fall in childhood.

On vaginal examination the promontory of the sacrum could not be reached; the ischial spines were very easily felt, projecting markedly inward, especially the left; from their level downward there was a gradual increase in the narrowing. The distance between the internal surfaces of the ischial tuberosities was two and one-quarter inches. The pubic bones were approximated toward each other, the pubic arch narrowed, the descending rami ran backward, nearly parallel, to the ischial tuberosities. The sacrum was bent forward at its lower part; its upper portion could not be felt. The coccyx was very movable. The distance between the sacro-coccygeal joint and the lower edge of the symphysis pubis was three and one-half inches; from the apex of the sacrum to the ischial tuberosities was two and one-half inches. The pubic articulation was widened anteriorly; there was marked pelvic floor projection.

The patient was eight months pregnant, and after labor had proceeded twelve hours the membranes were ruptured, and the head was found lying in the right pelvic diameter, occiput presenting. Delivery was effected by axis traction forceps. The perineum was ruptured, and also the vaginal tissue was torn by the ischial spines; as the perineal tissues fell naturally together, no sutures were used. Mother and child recovered well.

MITRAL STENOSIS AND THE THIRD STAGE OF LABOR.

HART, of Edinburgh, reports eight cases of this serious complication, seven of which proved fatal. He describes two cases fully, one patient dying from mitral stenosis, with fresh ulceration on the aortic valves; the other labored

under mitral stenosis, a small pelvis, and prolapse of the cord ; she recovered, however.

In considering the etiology of these cases Hart writes that during pregnancy we have imposed on the heart the task of driving a larger bulk of blood through the ordinary circulation, and an additional area formed by the enlarging uterus and placenta. For this extra task the left ventricle of the heart normally hypertrophies.

"Mitral stenosis is in itself a serious cardiac disease apart from any pregnancy, inasmuch as the weak left ventricle soon fails in its increased duty, the lungs become engorged, and the right side of the heart dilated. If the work of pregnancy, however, be added, then we get compressed into a few months, what otherwise might have taken years ; so that at the beginning of labor we may get such failure of compensation that we have a dilated and weak left auricle, congested lungs, and a dilated right heart. When the labor is finished and free hemorrhage does not occur, we get returned to the right side of the heart the extra amount of blood before accommodated in the uterine and placental sinuses. The right heart more or less speedily becomes distended and the lungs engorged, so that we may get death with over-distention of the heart ; great dyspnoea and threatened death ; or sudden pulmonary oedema.

"Of course, it is our duty to discountenance marriage most strenuously in all cases of women with mitral stenosis. This goes without saying. Unfortunately, our advice is seldom asked, and when given, not very often followed ; so that we get the problem before us of mitral stenosis and pregnancy—What is best now ?

"The only thing I do during pregnancy is to keep the patient at rest as much as possible, and administer tincture of strophanthus steadily when circulatory disturbance begins. I prefer it to digitalis, as it is a pure cardiac stimulant, and does not contract the small arteries as digitalis does. Digitalis, from its action on the arteries, tends to throw more blood into the venous system, and thus give more to the right side of the heart. Strophanthus, on the other hand, gives us heart stimulus, and does not increase the work of the heart by contracting the arterioles. I am aware, however, that I am treading on debatable ground here, and ground foreign to me. I can only say that strophanthus has given me distinctly better results than digitalis. During labor one must keep up the action of the strophanthus, and deliver as soon as possible, using chloroform as usual. But now comes the worst period, viz., the third stage, and the one that demands our greatest vigilance. The plan I advocate at that time is as follows :

"1. Give no ergotin.

"2. Feel no alarm at even free hemorrhage.

"3. Be specially on the outlook if hemorrhage is scanty.

"4. If the circulation becomes embarrassed, as evidenced by irregular heart action or dyspnoea, then push strophanthus and dry-cup over the heart, as suggested by Dr. Connel. Bleed the patient from the arm if the latter fail.

"5. Even if all seem right, have the patient constantly watched for the first day.

"The views advanced seem to me to place the retro-placental blood-clot and the gush of blood one so often has in a multipara when the placenta is sepa-

rating, in a new light. I have no doubt many of us have felt that these two occurrences have been due, perhaps, to want of vigilance or skill in the management of the third stage. The retro-placental clot has no function in separating the placenta, but it and the occasional gush should be regarded as salutary, as getting rid of that extra bulk of blood, which, if returned to the systemic circulation, might embarrass cardiac action, even in a healthy woman. I do not wish to seem to think lightly of hemorrhage, or even to hint that one is not to be most careful in attending to the third stage; I only state what I feel now, that in a normal case the blood-clot in the placenta and membranes, or the teacupful of blood lost in a single gush, is really better out of the patient's systemic circulation and heart."—*Edinburgh Medical Journal*, February, 1888.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
OF NEW YORK.

ERGOTIN INJECTIONS.

ENGLEMAN (Centralblatt für Gynäkologie, January 7, 1888) criticises a recent article by Bumm on this subject, in which the latter objects to the use of hypodermatic injections of ergotin, on the ground that they are painful and give rise to inflammatory nodules. Bumm attributed the local irritation to the fact that the preparations were poor, that the solutions used were too concentrated, and that the abdominal wall was chosen as the site of the injections; he, accordingly, preferred to use a neutral solution (one to five or ten), and to introduce the needle deeply into the glutei muscles. Englemann thinks that the site of the injection is of no consequence—although he avoids the abdominal wall—and that, so long as the solution is perfectly fresh, its reaction or degree of concentration is a matter of indifference. The local irritation is due entirely to the decomposition of the ergotin, which is not prevented by the addition of antifermentatives. If the solution is freshly prepared (the physician is recommended to prepare his own each time) no pain attends the injection; Englemann has injected a fifty per cent. solution without unpleasant effects. In the treatment of fibro-myomata, it is preferable to use weak solutions, since the action of the drug is then more gradual and continuous. In proof of his statements, the writer adds that he has several patients who have been receiving injections of ergotin for years, without having experienced any bad results. Patients can readily learn to administer injections to themselves.

THE ELASTIC LIGATURE IN MYOTOMY AND IN SUPRA-VAGINAL AMPUTATION.

KUHN (Centralblatt für Gynäkologie, January 7, 1888) argues in favor of the intra-peritoneal method of treating the stump. Even those who practise the

extra-peritoneal method (notably Keith and Kaltenbach) admit that the former is the ideal one. Kuhn showed, at a meeting of the Aertzl. Centralverein in 1886, a stump removed from a patient who died on the ninth day after supra-vaginal amputation, in which the elastic ligature was entirely buried by plastic lymph, the stump itself appearing as healthy as when it was first returned to the peritoneal cavity. He reported six cases, with only one death—from intestinal obstruction on the ninth day.

His technique is as follows: The rubber ligature consists of two tubes, three and one-half and six millimeters in diameter, which are joined together (one within the other?) and are previously soaked for two days in a five per cent. solution of carbolic acid. This cord is passed twice around the base of the tumor, and is tied in two knots. The stump is sutured with catgut. If the uterine cavity is opened, the cervical mucous membrane is excised in a funnel-shaped mass, so that the mucosa that remains will lie below the level of the constriction. The stump is thoroughly disinfected with a solution of bichloride, one to one thousand. The entire operation is conducted under the carbolic spray.

The same method is applicable to the removal of subperitoneal fibro-myomata with broad bases, the rubber ligature being applied and dropped back into the cavity with the uterus; the stump is sewed with catgut as before.

THE OPERATIVE TREATMENT OF RETROFLEXION.

SÄNGER (second part of paper in *Centralblatt für Gynäkologie*, January 21, 1888) continues his valuable article on this subject by detailing seven cases in which he performed "ventro-fixation;" in five of these the appendages were previously removed. He quotes from Hegar, who believes that castration for the relief of pain is of doubtful value when the uterus is retroflexed and adherent, because of pressure on the nerves at the point of flexion, as well as the resulting structural changes in the uterine wall. Säger would advise fixation of the uterus to the abdominal wall in every case of permanent retrodisplacement, with or without fixation, in which severe backache, hemorrhage, uterine colic, and painful defecation were present. A retro-displaced and movable uterus might give rise to more marked symptoms than one that was adherent. Ventro-fixation of a movable uterus is, he thinks, "an eminently conservative operation." He prefers Olshausen's method of attaching both cornua, using two or three silkworm gut sutures on each side. The dangers incurred in this operation are few. Intestinal obstruction can rarely occur, because there is such a small space between the uterus and the empty bladder that the gut can not be caught in it; when the latter viscus is full the contact is still more intimate. There is but little danger of wounding the inferior epigastric artery, as the sutures are passed internal to it.

The author admitted that the ideal method of ventro-fixation is yet to be devised; it is desirable that the uterus should be freely movable, as well as antverted, but at the same time its attachment to the abdominal wall must be permanent. With Olshausen's method there is less to be feared from the subsequent occurrence of pregnancy than with any other operation, since the points of attachment are in the ligaments of the uterus, rather than in the organ itself, and the former can be stretched indefinitely.

The principal objection to be urged against the operation is that it is necessary to perform laparotomy, but with modern antisepsis the dangers have been greatly diminished. No fatal cases of ventro-fixation have yet been reported.

Caneva's (Sims's?) suggestion to attach the uterus without opening the abdomen is to be condemned, since it involves the risk of puncturing a loop of intestine. Other plans have been proposed, such as shortening the utero-sacral ligaments [practised by Byford—ED.], or anteverting the uterus and attaching it to the vagina, the anterior fornix being previously opened. Klotz's method of keeping the uterus in place by means of a drainage tube he did not favor. There is danger of intestinal adhesions. If the uterus is firmly attached to the anterior abdominal wall in the manner recommended by Olshausen drainage is unnecessary. It is advisable for the patient to wear a pessary for two or three weeks after the operation until the wound has healed perfectly.

THE OPERATIVE TREATMENT OF RETROFLEXION WITH FIXATION.

KLOTZ, of Dresden (*Centralblatt für Gynäkologie*, February 4, 1888) replying to SÄNGER's criticism of his plan of operating, admits that Olshausen's method is a good one, but does not believe that every uterus can be fixed in this way. The writer was loath to adopt the open method, but he found that in no other way could he obtain the "intra-peritoneal support" necessary for permanent fixation. He did not believe that the uterus, secured according to Olshausen's plan, remains in position after the pessary is removed. The larger the abdominal wound, and the greater the shortening of the ligaments, the sooner is the uterus drawn backward to its former position. This is prevented by retraction of the cicatrix in Douglas's pouch. Even in supra-vaginal amputation, where the trunk is treated extra-peritoneally, it is not permanently adherent to the abdominal wall.

In seventeen cases in which he had used a drainage tube there had been no symptoms of intestinal adhesions. On the contrary, he was sure that in his cases more than two-thirds of the posterior surface of the uterus was free from new adhesions, the uterus being separated from the sacrum only by the "intra-peritoneal support," or cicatricial band formed by the drainage tube. The use of the tube led to a thickening of the posterior uterine wall—especially at the point of flexion—by the deposition of plastic lymph, which also served to draw the cervix backward. He acknowledged frankly that he had not been able to verify his theory by observation at the post-mortem table.

SÄNGER, in reply to the above (*Centralblatt*, February 18, 1888), calls attention to the fact that the success of Klotz's method seems to depend rather upon backward traction on the cervix than on fixation of the fundus anteriorly. Klotz himself admits that drainage is a necessary evil. As regards intestinal adhesions, SÄNGER is sure that they must be present. It was evident that Klotz must rely upon the adhesion between the uterus and surrounding organs for its permanent fixation; under these circumstances the statement that "two-thirds of the uterus was free from new adhesions" seemed rather peculiar, when Klotz objected to Olshausen's method because the range of mobility of the uterus was so limited, he was inconsistent in that by his own

method he aimed at fixing the organ solidly by means of the surrounding adhesions.

[We have introduced this controversy because of the important principles involved, as well as to call attention to the correspondence between Säger's criticism of Klotz's method and the comment which we made upon it in the March number of the JOURNAL.—ED.]

THE PATHOLOGICAL ANATOMY OF CATARRHAL SALPINGITIS.

CHIARI (*Zeitschrift für Heilkunde*, Bd. viii.) calls attention to the minute structure of the hard nodules sometimes found at the uterine end of a Fallopian tube that has undergone pathological changes in consequence of former salpingitis. These nodules vary in size from a pea to a bean, and are distinguished macroscopically by their pale color and firm fibrous structure, so that they have been described erroneously as true neoplasms (fibroma or fibromyoma).

On careful examination of sections made through these bodies, it is evident that they are due simply to localized hypertrophy of the muscular layers of the tube, the enlargement being concentric. Within these nodules are seen numerous spaces, lined with cylindrical epithelium, resting upon a stratum of connective tissue. These cystic spaces are formed by ingrowths from the mucosa, and contain serous (sometimes purulent) fluid. In seven cases in which the writer studied the nodules he found that the latter were always formed by localized hyperplasia and hypertrophy of the muscularis, the remainder of the tube showing evidences of chronic catarrh (hypertrophy). The invariable presence of the nodules at the uterine end of the tube is possibly due to the narrowness of the lumen at this point, so that when the mucosa becomes swollen in consequence of inflammation the obstruction is almost complete; hence the (compensatory) hypertrophy of the muscular coat.

[The reader will note that the condition described is similar to the general hypertrophy of the muscularis noted by Kaltenbach, who gives a similar explanation of its occurrence. Mundé has suggested the term "pachysalpingitis."—ED.]

THE DEVELOPMENT OF THE PERINEUM AND ITS SIGNIFICANCE IN CONNECTION WITH CERTAIN MALFORMATIONS.

REICHEL (*Zeitschrift für Geb. u. Gyn.*, xiv. i.) discovered in a sterile married woman, twenty-five years of age, a fistula between the rectum and the vulvo-vaginal orifice just below the hymen. The labia and anus were normal, but the perineum was short. As the patient said that feces had escaped into the vagina only since marriage, it was at first supposed that the perforation had been produced during coitus, but on careful examination the recto-vaginal septum below the hymen was found to be so thick that this theory was not tenable.

From the shortness of the perineum and the height of the vestibule, Reichel inferred that there existed a congenital malformation, the small preeexisting fistula being dilated or torn by coitus. Such a malformation cannot be explained by the ordinary theory that the perineum is formed by the dipping down of Douglas's septum.

From his embryological studies, the writer was led to concur with the opinion expressed by Rathke, in 1830, that the perineum is formed by the union, in the median line, of projections from the sides of the cloaca; the anal folds, rising simultaneously behind the cloaca, blend with the posterior genital folds below, and the septum of Douglas above, to form the anal portion of the rectum.

In the case reported Reichel thinks that the union between these folds and the perineum was imperfect, owing to a deficiency in the septum.

TUBO-OVARIAN CYSTS.

GRIFFITHS (*Trans. London Obstet. Society*, vol. xxix.) concludes an elaborate paper on this subject with the following deductions:

1. The dilatation of the tube and the formation of the ovarian cyst are secondary, not primary, factors in the formation of tubo-ovarian cysts.
2. The union of the tube and ovary is physiological, perhaps accidental.
3. The persistent cohesion is due to a subsequent inflammatory process.
4. The communication between the tube and the cyst is usually either primary, or it occurs early in the growth of the cyst.

In discussing this paper DORAN called attention to the fact that the fimbriæ really had little or nothing to do with the adhesion of the tubes to the ovary, since they early retracted into the ostium after the tube became dilated, the ostium then being sealed up by either localized perimetritis, or exudation from the mucous surface of the fimbriæ. He believed that the tubè and ovary became fused together after they had both, in consequence of chronic inflammation, become thin-walled cysts; the septum between these two cysts was then broken down, in the same manner as the septa between adjacent loculi in a multilocular cystoma. Only one authentic instance of congenital origin of a tubo-ovarian cyst is recorded. It is rare that the fimbriated extremity of the tube becomes adherent to a preëxisting cyst on the surface of the ovary, the cyst-wall subsequently rupturing, so that a communication is established between its cavity and the lumen of the tube.

EPISPADIAS IN THE FEMALE.

DOHRN (*Zeitschrift für Geb. u. Gyn.*, Bd. xii.) examined a servant, eighteen years of age, in whom the upper half of the nymphæ, the clitoris, and the prepuce were cleft, the mouth of the urethra being represented by a gaping, funnel-shaped opening at the commissure, through which a catheter was passed to a distance of three centimetres, entering the bladder; there was no sphincter vesicæ. The perineum was five centimetres in breadth. A triangular surface was denuded, having its apex at the mons, its lower angles corresponding to both halves of the clitoris. The opposite edges were sutured, when the meatus was brought down to its normal position below the clitoris. The patient could hold her water much longer after the operation than before.

Dohrn explained this malformation by supposing that the perineum developed prematurely, the *sinus urogenitalis* being pressed upward. This must have occurred at that period of embryonic life when the thin septum begins to form between the opening of the rectum and the *sinus urogenitalis*, which gradually develops into the perineum.

RETENTION OF MENSES IN A DOUBLE UTERUS, CAUSING RUPTURE.

JEANNEL (*Bull. et Mémoires de la Soc. de Chirurgie de Paris*, p. 305, 1887) reports the case of a married woman, aged twenty-six, who had never menstruated, although for several years she had had severe hypogastric pains every month. Jeannel made the diagnosis of double uterus, the left uterus being distended with menstrual blood, while the right (which communicated with the vagina by a small cervical opening) was compressed and atrophied. The external genitals were imperfectly developed.

On exposing the fornix vaginae a projection was seen corresponding to the distended uterus; this was punctured, 100 grammes of chocolate colored fluid being withdrawn; a crucial incision was then made, and the cavity was washed out, a number of clots being removed. The patient collapsed, and died soon after being placed in bed. At the autopsy it was found that the left uterus had ruptured at several points, the blood having escaped into the peritoneal cavity; this hæmatocele had been opened, and its contents evacuated. The right uterus communicated with the vagina by the cervix before mentioned. The tumor and all the pelvic organs were fused together into an inextricable mass, so that laparo-hysterectomy would have been out of the question. The writer concludes that when, after puncturing such a tumor *per vaginam*, the sac is found to contain blood-clots, it is better not to make a free incision and turn these out, since it involves too great a risk to the patient from the resulting shock.

THE HISTOLOGY AND PATHOLOGY OF SKENE'S URETHRAL GLANDS.

VAN COLT (*Brooklyn Medical Journal*, February, 1888) contributes some observations on the histology of Skene's glands, which he describes as racemose glands lying just beneath the mucosa and surrounded by dilated veins and arterioles. They resemble, in minute structure, the urethra, since they possess no submucosa. Their mucous lining consists of three rows of epithelial cells, the superficial layer being of the columnar variety with distinct nuclei, the next layer consisting of spindle-shaped cells, and the deepest of round cells with large granular nuclei. At the mouth of the gland the epithelium passes over into the squamous type. The secretion of the lining mucosa is a viscid mucus which, according to the writer, not only acts as a lubricant, but "helps to seal up the urethral orifice, preventing the entrance of air into the bladder" (?).

The pathological conditions which may exist are diminution of the normal secretion, with resulting inflammation at the meatus, or excess of the same. Acute inflammation may lead to stenosis and cystic enlargement of the gland. Gonorrhœal poison may harbor here, leading to obstinate inflammation.

The writer quotes at length Skene's original description of the clinical symptoms and treatment.

A RARE ANOMALY OF THE HYMEN.

KRYSINSKI (*Gazeta lekarska*, Bd. viii. No. 2, 1888; *Rundschau*, February 15, 1888) describes a case in which the hymen had, at its lower lateral border,

a small opening which only admitted a sound fifteen millimetres in diameter. At the upper part of the hymen there was a large projection that looked at first like the urethral opening, but on careful examination was found to be a circumscribed reduplication of the hymen, there being a sort of pocket like one of the semilunar valves of the aorta. In the anterior wall of the pocket there was a linear slit. The meatus urinarius was situated in the anterior vaginal wall, about two and one-half or three centimetres behind the hymen; the urine escaped through the aperture in the hymen before mentioned.

IRREGULAR SUB-VAGINAL AMPUTATION OF THE CERVIX FOR EPITHELIOMA.

RICHELOT (*Union Médicale*, No. 10, 1888), under this high-sounding term, refers to removal of a portion of the cervix uteri in cases of advanced epithelioma. If the disease is limited to the cervix, vaginal extirpation is the operation *par excellence*, since simple amputation might fail to remove all the affected tissue. When the periuterine tissues are invaded total extirpation is not to be thought of. In order to relieve the hemorrhage and fetid discharge, as much of the disease as possible should be removed with the scissors and sharp spoon.

[We have referred briefly to this paper in order to protest against the multiplication of articles on this subject. Nothing is gained by inventing new names for old operations. All that has ever been written on the operative treatment of cancer of the uterus may be summed up in a few words—if the disease has not extended too far, remove as much of it as possible, by scraping, amputation, or total extirpation, according to the indications in the individual case.—ED.]

LATENT AND CHRONIC GONORRHOEA IN THE FEMALE.

NOEGGERATH (*Deutsche med. Woch.*, No. 49, 1887) concludes a recent paper on this subject with an enumeration of the signs by which chronic gonorrhœa may be recognized. These are, he asserts:

1. A woman, previously healthy, is attacked with pelvic troubles soon after marriage, her general health frequently suffering to an extent not explicable by the slight changes observed in the sexual organs.

2. She has a purulent discharge, not depending upon the presence of an existing erosion, sarcoma, or carcinoma; or there may be a scanty glairy discharge from the bright red, eroded cervix.

3. There is a catarrh of the ducts of the vulvo-vaginal glands.

4. Small acuminate condylomata are seen around the vaginal outlet; there may be a ring of them just above the anal orifice.

5. Granular vaginitis is present.

6. Evidences of peri-salpingitis or ovaritis, the latter being of the glandular variety. It is important, the writer adds, that several or all of these symptoms should be combined; a single one has no diagnostic value.

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
The Improved Cæsarean Section, with the report of a Successful Case. By HENRY J. GARRIGUES, A.M., M.D.	439
Syringomyelia: its Pathology and Clinical Features. By M. ALLEN STARR, M.D.	456
Hysterorrhaphy. By HOWARD A. KELLY, M.D.	468
Prolapse of the Inverted Lower Portion of the Right Ureter through the Urethra in a Child two weeks old. By AUGUSTUS CAILLE, M.D.	481
On the Sterilization of Milk and Foods for Infants. By J. AMORY JEFFRIES, M.D.	486

REVIEWS.

The Rules of Aseptic and Antiseptic Surgery. By Arpad Gerster, M.D.	497
Transactions of the American Ophthalmological Society.	499
Diseases of the Bones: their Pathology, Diagnosis, and Treatment. By Thomas Jones, F.R.C.S. Eng., B.S. Lond.	501
Chemical Analysis of Healthy and Diseased Urine. Qualitative and Quantitative. By T C. Van Nûys.	
Praetical Urine Testing. A Guide to Office and Bedside Urine Analysis. For Physicians and Students. By Charles Godwin Jennings, M.D.	
The Urine. Memoranda, Chemical and Microscopical. By J. W. Holland, M.D.	503
Anatomy, Descriptive and Topographical. By Carl Heitzmann, M.D.	505
Handbuch der Ohrenheilkunde. Von Wilhelm Kirchner.	506

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
The Hypodermatic Injection of Quinine	507	Oxynaphtoic Acid	509
On the Treatment of Typhoid Fever	507	Flour of Sulphur in Sciatica	509
The Treatment of Phthisis by Subcutaneous Injection, and Inhalation of Sulphurous Acid Gas	508	The Subcutaneous Use of Methylal in Delirium Tremens	509
Strophanthus in Typhoid Fever	508	Anthraxobin—A New Remedy for Skin Diseases	510
The Value of Hypodermatic Injections of Eucalyptol and Iodoform in Phthisis	509	Amylen Hydrate as a Hypnotic	510
		Salicylic Acid and Salol in Acute Rheumatism	510
		Tribromphenol	511

MEDICINE.

Weil's Disease	511	Dicrotism of the Pulse in Insufficiency of the Aortic Valves	517
Acromegalie	512	Physiological Variations in the Shape and Position of the Liver	518
Friedreich's Ataxia	514	On the Occurrence of Rhabditides in the Urine of Hæmaturia	518
Acute Ascending Paralysis	515		
The Treatment of Sleeplessness	516		
Stomatitis Aphthosa	517		

SURGERY.

	PAGE		PAGE
Sterilized Dressings	519	The Immediate Treatment of Rup-	
A Case of Cerebral Cyst	521	ture of the Urethra	524
Œsophagotomy for Removal of a For-		Hydroecle Neonatorum	526
eign Body	521	The Treatment of Mammary Tumors	526
Wound of the Left Ventricle	521	Suggestions as to the Technique of	
Treatment of Wounds of the Abdom-		Amputation	527
inal Viscera	522	Extirpation of the Scapula	527
Removal of a Portion of the Liver	523	Drainage in Suppurating Synovitis of	
The Treatment of Floating Kidney	523	the Hand and Forearm	528
The Radical Cure of Hernia	523		

OTOLOGY.

Report of 5700 Cases of Ear Disease	528	Relation of Adenoid Growths in the	
On Clinical Groups of Diseases of the		Nasopharynx to the Production of	
Ear	528	Middle Ear Disease in Children	530
The Wet-cup, instead of the Leech, in		Polypi in the Middle Ear, showing	
certain Acute Diseases of the Ear	529	Bad Effects of their Pressure	531
Zaufal's Pneumococci in Acute Otitis		On the Determination of Important	
Media	529	Topographical Relations in the	
On the Effect of High Atmospheric		Temporal Bone from the Form of	
Pressure on the Ear	530	the Skull	531

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

Hydrogen Peroxide in Diphtheria	532	Extirpation of Goitre by Operation in	
Blennorrhœa of the Larynx	532	Two Stages	534
Unilateral Laryngectomy	533	Nasal Stenosis and Pulmonary Dis-	
Tumor (Sarcoma) of the Trachea	534	tention	535
Tracheo-bronchic Adenopathy in Ty-		Antipyrin in Epistaxis	535
phoid Fever	534		

OBSTETRICS.

A Comparison between Craniotomy,		Accidents caused by Intrauterine In-	
Induced Labor, and Cæsarean Section	535	jections	539
Cæsarean Section in a Case of Uncon-		Ovariectomy during Pregnancy; Re-	
tracted Pelvis	537	covery; Delivery at Term	541
Intra-uterine Hemorrhage during		Scarlatina in Pregnancy; its Relation	
Pregnancy	527	to Puerperal Fever, and Treatment	541
The Normal Course of Puerperal			
Temperature	538		

GYNECOLOGY.

The Flap Operation for Repair of Rup-		An Undescribed Form of Degenera-	
tured Perineum	543	tion of the Ovary	545
Hæmatoma of the Vulva in the Non-		Galvanism in the Treatment of Sub-	
Pregnant	543	acute Pelvic Inflammation	546
The Nature of the Hymen	544	Amenorrhœa in Diabetes	547
Epithelioma caused by the Long Re-		Strophanthus in the Treatment of Me-	
tention of a Pessary	544	trorrhagia at the Menopause, and	
High Amputation versus Vaginal		in Plethoric Females	547
Hysterectomy	544	The Treatment of Hysteria and Neu-	
The Technique of Ergotin Injections	545	rasthenia	548

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

MAY, 1888.

THE IMPROVED CÆSAREAN SECTION, WITH THE REPORT OF
A SUCCESSFUL CASE.

BY HENRY J. GARRIGUES, A.M., M.D.,
PROFESSOR OF OBSTETRICS IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL,
VISITING OBSTETRIC SURGEON TO THE NEW YORK MATERNITY HOSPITAL, ETC.

IN two previous papers¹ I have called the attention of the profession to the improvements gradually introduced in the performance of the Cæsarean section. In the first, I reported an operation I had performed on a patient afflicted with numerous chronic and acute diseases, and weakened by an ante-partum hemorrhage, in consequence of which the fœtus died long before the operation was performed. The mother died fifty-two hours after the operation, and the autopsy showed that the peritoneum, which had been folded in over the edge of the incision in the uterus, as well as the outer two-thirds of the muscular wall, was agglutinated by the first intention, and that the line of union on the peritoneal covering was, to a great extent, covered with a fine white film of new-formed tissue or "plastic lymph."

In the second paper, I showed how little ground there is for attaching a single man's name to the operation in its present shape, which is a beautiful outgrowth of general surgical and special gynecological development, an evolution due to the combined efforts of many men working independently of each other, in different countries, especially Lister in Scotland, Spencer Wells in England, Guéniot in France, P. Müller in Switzerland, Leopold in Germany, and last, but not least, Ljungren in the United States.²

¹ American Journal of Obstetrics, April, May, June, 1883, and October, 1886.

² Even in Germany voices have been raised against the ludicrous claim alluded to. At the meeting of the German Gynecological Society in Munich, in 1883, Knlttenbach asked what was left of Säger's method after the undermining of the peritoneum and the excision of the muscular tissue had been given
VOL. 95, NO. 5.—MAY, 1888.

This time I have the pleasure to report a case in which I successfully applied most of the improvements discussed critically in the former papers.

CASE.—Minnie St. J., American, twenty-two years old, married, domestic, was admitted to the Maternity Hospital, Blackwell's Island, January 31, 1888. She is the youngest of several children. Her parents died when she was two years old, but she says they were both small of stature. She does not know anything about her mother's confinements, nor about the size of her sisters and brothers. In her childhood she had measles, whooping-cough, and croup, enlarged and suppurating glands on the neck, of which there still remain large scars, and fainting spells during a whole year, when about six years old. After that she enjoyed good health. She menstruated for the first time at fifteen. Her menstruation was regular, and at first painless, later she suffered somewhat from dysmenorrhœa. Two years ago she had a spontaneous miscarriage when she was two months advanced in pregnancy. Her last menstruation occurred on May 20, 1887; quickening at five months. During the first four months of her pregnancy she had morning vomitings, later she was well.

The patient is 55½ inches (141 cm.) high, of slender build, blonde, and pale. The pelvis measured, between the anterior superior spines of the ilium, 7½ inches (19 cm.); greatest distance between the two cristæ ilium, 8½ inches (21.5 cm.); Baudelocque's diameter, 6½ inches (16 cm.); between the posterior superior spines of the ilium, 2½ inches (6 cm.); between the trochanters, 10 inches (25 cm.). Vaginal examination revealed great narrowness of the transverse diameter of the whole pelvis, a narrow pubic arch, and a true conjugate little more than 3 inches (8 cm.).

My colleagues, Drs. R. A. Murray and E. H. Grandin, expressed the opinion that the choice would lie between laparo-elytrotomy and Cæsarean section. Some years ago I took great interest in the former operation, and investigated its history, its anatomical basis, and best mode of execution,¹ but that was at a time when the Cæsarean section either in its old form, or as Porro-Müller's operation, presented a mortality of fifty-four to fifty-eight per cent. In view of the great success obtained of late by the improved Cæsarean section, that, in my opinion, must at present take the lead in the list of operations applicable in a case as the one before us.

np, and silk and silver had proved to be about of the same value. All that Singer, who was present, had to answer, was that he had recommended the use of numerous sutures, that he had rejected absorbable material for suturing, that the decidua should not be comprised in the suture, and that he laid special stress on an exact sero-serous suture. But every single one of these points has been borrowed from others; numerous sutures and the combination of deep muscular and superficial peritoneal sutures were used in fibroids of the uterus by Spencer Wells and by Kehrer in Cæsarean section; catgut had been rejected. Lנגren had avoided the decidua as early as 1875, and published it in 1880. (*Archiv für Gynäkologie*, vol. xxviii. p. 463.)

¹ Garrigues on Gastro-elytrotomy, *New York Medical Journal*, October and November, 1878, reprinted as separate pamphlet by D. Appleton & Co. Additional Remarks on Gastro-elytrotomy, with Special Reference to Porro's Operation, *American Journal of Obstetrics*, January, 1883.

Labor pains began on February 23d, at 8 P. M. I reached the Island, upon which the hospital is situated, at midnight. It took two hours to make the necessary preparations, as the only thing that had been done beforehand was to disinfect the room with bichloride and sulphur.¹ When everything was ready for the operation I examined the patient, but finding the os only sufficiently dilated to admit the tip of the finger, and labor pains weak, I thought it was better to wait. During the night, the pains increased, and the outer os became sufficiently dilated to allow easy simultaneous introduction of the finger and a uterine tube.

Etherization was begun on February 24th at 7.55 A. M. The abdomen and genitals were shaved, washed, and disinfected with bichloride of mercury (1 : 2000). I was assisted by Drs. E. H. Grandin, H. C. Coe, H. Jarecky, K. Ruffin, and A. D. Rockwell. Dr. R. A. Murray, who lives at a great distance from the hospital, and could not be sent for before six o'clock, arrived during the operation. The house staff of Charity Hospital, and many of the members of the Training School for Nurses were likewise present.

The sponges were kept in a weak solution of corrosive sublimate (1 : 5000), the instruments in carbolyzed water (two and a half per cent.). All participating in the operation disinfected themselves with bichloride (1 : 2000).

The patient's condition was good, pulse and temperature normal. The fundus stood seven inches above the umbilicus. The fetus was in vertex presentation, left occipito-anterior position. The head was entirely above the brim of the pelvis. The foetal heart was heard three finger breadths to the left and below the umbilicus. It beat 120 per minute, was regular and of normal strength.

At 8.17 A. M. I made an incision in the median line, from the umbilicus to two and a half inches above the symphysis pubis. A few vessels were clamped with compression forceps. The peritoneum was opened enough to introduce the tip of the index finger and then slit open with scissors to the same extent as the other parts of the abdominal wall. Next the incision through the abdominal wall was extended four inches upward to the left of the umbilicus, just enough to lift the uterus out. Before doing so I inserted four silk sutures through the edges of the wound above the umbilicus, and clamped them at sufficient length to allow the uterus to pass. The incision was extended a little downward so as just to have room for the uterus, when it was tilted out. Next I introduced the left hand into the abdominal cavity and pulled out the uterus, first the right corner, then the fundus, and finally the left corner, when the body followed easily. The uterus was immediately enveloped in hot towels wrung out in bichloride (1 : 10,000). Next I placed a finger-thick rubber tube loosely around the cervix, just below the head. Then I tied the four sutures at the upper end of the abdominal incision. They had become entangled in the omentum, but were easily liberated and closed. Flat sponges were placed behind and in front of the uterus.

The uterus was opened in the median line, beginning at the most prominent point, with small, repeated cuts. The wall was nearly an inch thick. As soon as the index finger could be introduced I dilated the incision upward and downward with a probe-pointed bistoury, just

¹ Garrigues: Practical Guide in Antiseptic Midwifery in Hospital and Private Practice. Detroit, 1886. Pp. 23 and 24.

enough that my hand could pass, about to the length of five inches (13 cm.). At the same moment the incision was begun, the tube around the cervix was tightened. Very little blood flowed out from the cut surfaces and was easily wiped off with sponges. The edges separated and the intact ovum appeared at the bottom as a greenish-gray vesicle, in the interior of which the fœtus was discernible. I tore the membranes near the lower end of the incision, introduced the left hand, grasped the occiput of the child and lifted the head out. The body followed. I tied and cut the cord, and left the child to the care of Dr. Manges and Miss Marion Murphy, the head nurse. The child was removed at 8.35, eighteen minutes after the beginning of the operation, but only a minute after the tightening of the constrictor. It gasped and grunted already on the table and soon cried lustily.

The placenta had been inserted on the posterior wall, but had been cast off. I grasped it and peeled the membranes off from the uterus in one piece, together with the placenta. At the lower end the membranes were caught in the constricting tube, but I could introduce one finger and liberate them. The removal of the after-birth was finished at 8.37.

I passed six deep silk sutures through the wall of the uterus, except the endometrium, entering about three-eighths of an inch from the edge on the outer surface. The ends of each of them were provisionally clamped. The uterine cavity was not sponged, washed, or dusted. In closing the deep sutures the peritoneum was folded in between the edges by means of a tenaculum. Next, eight superficial fine silk sutures were inserted through the peritoneum alone, between and at the ends of the deep sutures, going in and out on the same side before crossing the line of incision, so as to obtain a broad apposition. While they were being tied the assistant took off the strain by means of two tenacula. At the lower end it was found that a small piece of peritoneum had been torn off on the right side, in some unaccountable way. The edge being too far away from the line of incision to be united with the edge of the peritoneum of the opposite side, I passed the suture through the sub-peritoneal connective tissue on this side and connected it with the peritoneum on the other side of the incision.

When the last suture had been passed, the tube was loosened slowly without removing it. When the blood-current returned to the uterus, some hemorrhage appeared between the fifth and sixth deep suture, near the lower end of the incision, which had gone a little beyond the line of demarcation between the thick and the thin part of the uterine wall. Very large veins were observed below the peritoneum in this place. Two additional sutures were passed under them, when the hemorrhage stopped. At the other sutures there was slight oozing, which was checked by mere compression with sponges. Twenty minutes were occupied in watching and controlling this hemorrhage. A couple of sponges, introduced on sponge-holders to the bottom of the pelvis, came out entirely clean, showing that neither blood nor liquor amnii had entered the peritoneal cavity. The tube was removed, and the uterus replaced. The omentum was left at its top. The abdominal wall was closed with eleven deep silk sutures comprising the whole wall, special care being taken to include the aponeurosis of the abdominal muscles. Five superficial silk sutures were inserted where they were needed to accomplish perfect apposition of the edges of the skin. The abdominal sutures were passed from 9.18 to 9.35.

When I was through closing the abdominal cavity, it was noticed that the uterus had enlarged somewhat, and when I squeezed it, some clots and fluid blood came out from the vagina. I, therefore, at 9.40, gave a hot intrauterine douche of six pints of a solution of bichloride (1 : 4000). The external os admitted the tube and one finger easily, but I had some little trouble in passing the glass tube¹ through the internal os. Several small clots were washed out with the intrauterine douche, and all hemorrhage stopped.

The wound was dusted with iodoform, covered with a piece of gutta-percha tissue, half a dozen layers of iodoform gauze, a thick pad of salicylated cotton (five per cent.), five broad strips of rubber adhesive plaster, muslin belly binder, and my usual antiseptic perineal occlusion dressing.² Two grains of ergotin were injected hypodermatically on the back of the right forearm.

Duration of operation, from beginning of incision until the last suture was tied, one hour and eighteen minutes.

The child, a boy, weighed six pounds nine ounces; the diameters of his head measured, occipito-mental, five and one-quarter inches (13.5 cm.); occipito-frontal, four and three-quarters inches (12 cm.); fronto-mental, three inches (7.5 cm.); suboccipito-bregmatic, three and three-quarters inches (9.5 cm.); biparietal, three and three-quarters inches; bitemporal, three and one-half inches (9 cm.); bimalar, three inches (7.5 cm.). At the hour of proof-reading, five weeks after the operation, he is in excellent condition. The after-birth weighed fifteen ounces. The cord was twenty inches long.

The patient was placed in a bed with bottles filled with hot water. She rallied well from the anæsthesia, but complained of nausea, which was much relieved by repeated doses of $\bar{\text{ss}}$ to $\bar{\text{ij}}$ of strong black coffee. Later, she was given milk, brandy, and water. The perineal dressing was, as usual, changed every six hours. The urine was drawn with catheter until she could pass it herself. The lochial discharge was bright red, without fœtor, normal in quantity. The pulse was more frequent than usual, temperature and respiration normal. Off and on, during the first few days, she complained of pain in the abdomen, which was easily relieved by one-eighth of a grain of morphine. From the third day, when she felt a desire to have her bowels move, they were kept open by a daily enema of soapsuds. Three times a day she was given $\bar{\text{ss}}$ of fluid extract of ergot, but, as it caused vomiting, we left it out after the second day.

On account of the ether she was not allowed to nurse the baby for twenty-four hours, but after that she did so regularly, the child received no other nourishment for three weeks and thrived.

The mother lived on coffee and milk for four days. Then wine jelly, farina gruel, beef-tea, and eggs were added. From the ninth day she ate beefsteak, turkey, potatoes, and cake.

On March 2d, a week after the operation, the abdominal dressing was changed for the first time. All sutures were removed. The wound was found healed by the first intention, the upper two inches and one inch at the lower end through the whole thickness of the wall. On a space of two and one-half inches, just below the umbilicus, the deeper parts were united, but not the skin. There was no trace of pus anywhere. The

¹ Antiseptic Midwifery, p. 94.

² *Ibid.*, p. 27.

fundus uteri was felt just below the umbilicus. There was no tenderness on pressure. The abdomen was cleansed with bichloride (1:2000), the wound dusted with iodoform, the tension taken off by means of rubber adhesive plaster strips, one finger-breadth wide and nine inches long, and a similar dressing put on as the first time.

On March 8th the temperature, which had been normal all the time, rose to $103\frac{1}{2}^{\circ}$ F. The patient complained of pain in the right breast, where there was found a hard and tender nodule in the mammary gland and an excoriated nipple. On March 1st, the nipple had become sore, and had been treated with tannin, but this time we did not succeed in avoiding mastitis.

The abdominal dressing was removed. The wound was healed throughout by the first intention. The fundus stood yet four inches above the symphysis pubis, but there was no trace of tenderness either on abdominal palpation or by vaginal examination, and the lochial discharge consisted of normal, thick, sweet, slightly pink, odorless mucus.

The uterus was found fastened to the abdominal wall to the right of the line of incision. The fundus stood four inches above the right pubic bone. Only four narrow plaster strips were put over the abdomen, and the dressing renewed.

The following table shows the state of the temperature, pulse, and respiration during the first two weeks before the breast became inflamed.

Date	Temperature.		Pulse.		Respiration.	
	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.
February 24 . . . . .	.....	100.4°	.....	106	.....	24
" 25	99.3°	99.3	100	106	20	20
" 26	99.6	99.8	90	94	20	20
" 27	99.1	99.2	86	76	19	18
" 28	98.5	99.5	70	86	20	22
" 29	99.3	98.4	88	70	21	20
March 1	98.1	98.8	76	67	20	20
" 2	98.7	98.0	84	60	20	16
" 3	98.9	98.4	66	64	20	18
" 4	98.3	99.1	66	66	20	22
" 5	98.5	99.0	62	62	22	18
" 6	98.3	98.8	60	64	18	18
" 7	98.6	99.5	56	54	19	18
" 8	98.5	.....	60	.....	22	.....

Apart from the breast trouble, she continued in excellent health, got out of bed March 16th, and is well now, five weeks after the operation. The fundus stands as mentioned, the os is drawn upward and forward, and is felt a little above the symphysis pubis, near the anterior wall of the abdomen, three and three-quarters inches below the fundus.

Anatomical and physiological observations.—A short description of the organs as they appeared during the operation may, perhaps, interest some of my readers besides myself.

Before being incised the uterus was of a purple color, and the tightly stretched peritoneal covering reverberated the light like a polished surface. The fundus was so much developed that it formed half a circle; the tubes and ovaries lay way up in the abdominal cavity. During the incision the edges retracted, and when it was finished the uterus presented a large gaping opening with bevelled edges, the outer parts being more retracted than the inner. At the bottom of this gap lay the ovum as a transparent greenish-gray bag, in which the foetus could be seen indistinctly. When the membranes were ruptured the body of the womb contracted so as to fit its contents tightly. After the removal of the foetus it contracted again—so much as to measure only six or seven inches from the cervix to the fundus. The cut edge was about one and one-half inches (4 cm.) thick. The peritoneum was shrivelled up and lay in wrinkles like a misfit coat, and had a light gray color, and dull, waxy appearance, having lost all its former shining gloss. It was easily lifted up and folded in a quarter or three-eighths of an inch. The cut surface had a grayish-brown color as of half-boiled meat, and on it appeared the contracted sinuses as round, cherry-colored spots one-eighth of an inch in diameter. Douglas's pouch was remarkably shallow. In front of the uterus was yet left a good-sized pouch, but that was because I had not extended the incision down to the symphysis of the pubic bones.

The placenta was inserted on the posterior wall of the uterus. It was loose, a normal consequence of the contraction of the surface to which it is attached. The membranes behave in an entirely different way. In the three Cæsaean sections I have seen and, so far as I remember, in all I have read of, they remained fastened to the inside of the uterus and had to be carefully peeled off by inserting the fingers between them and the uterus. On account of their thinness and great elasticity they adapt themselves to the size of the surface on which they have grown, which the placenta under normal circumstances cannot do. The difference between the peritoneum, that lay in wrinkles, and the membranes, that adapted themselves to the inside of the uterus, was very striking. The separation between the ovum and the uterus took place in a white spongy substance that broke easily under the advancing fingers. The fact that the membranes adhere to the inside of the womb after the placenta is cast loose is of special importance for those who use Credé's expression method or any other method by which the placenta is delivered artificially soon after the birth of the child. It teaches the necessity of withdrawing the membranes very slowly and carefully in order not to tear them.

After the removal of the placenta and the membranes the uterine wall was entirely smooth and so clean that I did not even care to touch it with a sponge. When the tube was loosened the uterus became violet.

REMARKS ON THE OPERATION.—I take it to be a valuable improvement to turn out the uterus before opening it, as advised by P. Müller. It is true that this necessitates a somewhat longer incision through the abdominal wall, but I do not think the difference will be more than one

or two inches, for, in order to incise the uterus in the proper place, *in situ*, we have to go at least two inches above the umbilicus, as I did in my first case, and in this last one I could turn out the uterus by extending the incision four inches above the umbilicus. Even those who are opposed to turning out the uterus before opening it, do so after the removal of the child. Consequently they extend the incision to the same point downward as when the uterus is turned out beforehand. But we must remember that the abdominal wall is very elastic and recedes considerably when the uterus is pulled through it. It is, therefore, by no means necessary to extend the incision as high up as the uterus reaches. The fundus stood seven inches above the umbilicus, and still it could pass through an incision that went only four inches above that point.

By turning out the uterus before opening it we have the great advantage that we can surround the cervix with a soft rubber tube and thereby control all hemorrhage (Esmarch's method). I take it to be better to let an assistant hold the ends of the tube with his hands than to fasten them with a clamp or even to tie them as advised by others. If any part of the fœtus be caught in the constrictor the assistant can loosen it and immediately tighten it again after the operator has liberated the imprisoned part. In my first case there was considerable hemorrhage from the uterine sinuses, which it sometimes might be hard to control. In the last hardly any blood was lost during the operation. But, on the other hand, there was some hemorrhage after the constrictor was taken away. This is said to take place in all cases in which the constrictor is used.¹ It is due to the return of the dammed-up blood into the empty vessels below the constriction. The tube ought, therefore, to be loosened very slowly in order to let the equalization take place gradually.

To sew the peritoneum to the rest of the abdominal wall (Leopold) is not necessary. It is more expeditious merely to leave the two pairs of compression forceps on it, so as to find it readily when the abdominal wound is to be closed. But to put in sutures at the upper end of the incision before turning out the womb (Frank) is an excellent thing. Having seen how much another operator was troubled by the intestines coming out through the large opening behind the empty uterus, I inserted sutures before turning out the uterus, and tied them before opening that organ. The result was that I did not even see the intestines, and that no fluid entered the peritoneal cavity.

It is much better to help the head out first than to seize a foot, as taught by the old and some modern authors. When we lift the head out, the body follows without any difficulty; whereas, when extraction is made by the feet, it sometimes happens that the uterus contracts

¹ Zweifel: Archiv für Gynäkologie, vol. xxxi. p. 199.

around the child's neck, exposing it to great danger of suffocation, and necessitating a dilatation of the wound in the uterus.

In making the incision in the uterus care should be taken not to extend it into the lower uterine segment, that is that part of the womb which after the delivery of the child is thin, and which perhaps simply is part of the cervix. That happened to me, as it has to many others, and the difficulty is that the line of demarcation between the thick and the thin part of the womb, cannot be seen beforehand. I began my incision just at the line separating the fundus from the body, but it would have been better to go an inch higher up here and save as much at the lower end. In this respect the incision in my first operation was better. The large veins found on this so-called lower uterine segment may cause a troublesome hemorrhage, or the abundant loose connective tissue found under the peritoneum in this locality become the seat of a hæmatoma.

For suturing the uterus strong curved needles are necessary. I used this time round, trocar-pointed needles, which enter easily and do not cut any vessels. For the peritoneal suture a finer, curved, round, simply pointed needle is the best. For the abdominal wall I prefer Spencer Wells's long, straight, triangular needles.

Many complicated sutures for the uterus are described by different operators. All that is needed is a simple interrupted suture, avoiding the endometrium, and folding in the peritoneum, so as to bring serous surfaces into contact, both of which were done by Dr. S. S. Lungren, of Toledo, Ohio,¹ before the new literature on Cæsarean section was begun. How many of these deep sutures are necessary is to be decided in every particular case by the judgment of the operator. In this latter operation I used only six.

If we insert few deep sutures, a second series of superficial ones, only comprising the peritoneum, ought to be introduced between the others. Some try to make a whole cover of peritoneum over the first row of sutures, but that is not necessary and not always possible. I simply introduced the needle half an inch from the edge, pushed it out a quarter of an inch from the edge, introduced it again a quarter of an inch from the other edge, and pushed it out half an inch from the edge. By drawing the suture together the two linear surfaces a quarter of an inch in length are brought into apposition, and there is even left a little curtain that will be folded in between the suture and the line of incision, and contribute to a more complete closure of the uterine cavity. It will be noticed that this is somewhat different from Lembert's intestinal suture, in which the needle is pushed out and reintroduced exactly at the edge of the wound.² In both of my operations, and in the one

¹ American Journal of Obstetrics, 1881, vol. xiv. p. 92.

² Bardeleben: Lehrbuch der Chirurgie, Berlin, 1872, vol. iii. p. 666.

described by Dr. Lusk,¹ in which I assisted him, this was easily done. Zweifel,² on the other hand, has found cases in which it was impossible to fold the peritoneum, but in these the peritoneal edges came in close apposition on tying the deep sutures.

I used exclusively silk sutures, and take them to be preferable to any other. Catgut is hard to tie and is very liable to become untied when used on the uterus. I would not recommend silver wire. Those who are not accustomed to work with it, would find it much more difficult to get a nice adaptation of the edges. The folding in of the peritoneum must be more difficult when silver is used. It is not always easy to find good silver wire. Thus, in Obermann's³ hands six silver sutures out of eight burst, and had to be replaced by silk. I think aseptic silk is the best of all, but I would not rely on that sold in the stores. I prepare mine myself by boiling it for half an hour, immerse it in bichloride solution (1:1000) for another half hour, and keep it wound on glass spools in alcohol.

The great value of a good uterine suture is indirectly shown in an interesting paper by Krukenberg,⁴ in which he has collected all the cases he could find of rupture of the uterus in a subsequent pregnancy after Cæsarean section. Sometimes the rupture took place in the cicatrix, and the child was expelled into the abdominal cavity. In another series the rupture occurred likewise in the cicatrix, but the rent was smaller, and the child remained in the uterus. In yet other cases the uterus ruptured in another place than the cicatrix.

Kehrer⁵ has advised to aim at producing coalescence between the uterus and the abdominal wall, and washed the peritoneum with a strong solution of bichloride (1:1000) for the purpose. I think it would be better, if possible, to avoid it. I used only a very weak solution, and only with the object in view to protect the uterus from contact with hospital air. During convalescence it sank considerably, but still became fastened to the abdominal wall.

The same author⁶ gives another advice which strikes me as worthy of being followed, namely, to insert the deep uterine sutures before removing the placenta. By so doing we would let nature have a little time to prepare the uterus for the removal of the after-birth, and still not lose any time in simple idle waiting.

In a typically clean operation as the above described there is no call for any kind of drainage. The abdominal cavity might be washed out with some disinfectant fluid or plain water if anything dangerous, such

¹ Lusk, in *New York Medical Journal*, 1887, vol. xlv. p. 505.

² Zweifel, in *Archiv für Gynäkologie*, 1887, vol. xxxi. p. 197.

³ Obermann: *Archiv f. Gynäk.*, 1886, vol. xxvii. p. 275.

⁴ Krukenberg: *Archiv f. Gynäk.*, 1886, vol. xxviii. p. 421.

⁵ Kehrer: *Archiv f. Gynäk.*, 1886, vol. xxvii. p. 239.

⁶ *Ibid*, p. 257.

as putrid liquor amnii or meconium had found its way into it, but then the cavity ought to be closed. If later there arise dangerous symptoms, the abdominal wound may be partly reopened and a drainage tube inserted, in order to pump out by means of a glass syringe with adapted soft-rubber tube, or Hegar's wire wound with absorbent antiseptic cotton, what fluid may collect in the peritoneal cavity, or a soft-rubber drainage tube with cross-bar may be carried through an opening made in Douglas's pouch to the entrance of the vagina.

To leave a drainage tube in the uterus, as I did in my first case, is objectionable, as it may become a source of infection. If the cervical canal is open, the lochial discharge will find its way out through it, and if it is not, the cervix must be dilated during the operation.

Leopold¹ injects ergotin into the uterine wall before loosening the tube around the cervix. It seems to me that this is to run an unnecessary risk. How often are not abscesses, or at least painful inflammations produced when drugs are injected under the skin, and to what dangerous, nay fatal consequences might such an event lead, if it took place in the uterus.

The temptation to remove the ovaries and thereby protect the woman against all dangers from subsequent pregnancies is great indeed. Still, I believe it is better not to yield to it. Although it might be done in a few minutes, it would, in my opinion, complicate the operation and enhance the risk. After oöphorectomy the patient has very considerable pain for a whole week, which probably comes from the constriction of the nerves in the pedicles, and two stumps are left in a condition in which they cannot be nourished before new channels of supply have been opened. I think we ought to be satisfied, if we can bring the patient safely through the infliction and healing of the unavoidable wounds, without complicating the case by the addition of unnecessary and dangerous elements.

It is, upon the whole, a great question if it is justifiable gratuitously to deprive a woman of the possibility of again becoming a mother. If, in view of the fact that these operations are almost exclusively performed on poor women who find it hard to rear their children, it is thought desirable to sterilize them, this might probably be done in a safer way by ligating the tubes. There can hardly be any doubt that many ovula fall into the peritoneal cavity, and are dissolved there without giving any trouble; but, on the other hand, blood from Graafian follicles, which otherwise might have found its way out through the Fallopian tube, may form a hæmatocele. Thus, taking everything into consideration, I think it better to limit the operation to the safe termination of the present pregnancy and not to include in it any kind of measure tending toward prevention of future pregnancies.

¹ Leopold: *Archiv für Gynäkologie*, xxviii. p. 464.

The question presents itself, What is the best way to deal with the omentum? To draw it down in front of the uterus might give rise to adhesions between it and the line of incision or the sutures, which might become dangerous by causing intestinal obstruction. Frank¹ has proposed to draw it down over the intestines behind the uterus and fasten it there with catgut. I simply pushed it up above the fundus of the uterus.

In closing the abdominal cavity care should be taken to include the aponeurosis in the sutures so as to strengthen the cicatrix as much as possible and try to prevent ventral hernia, which often is a sequel to laparotomy, especially when the incision has been long. In order to prevent this accident, Keith puts in about four sutures to the inch.² Recently I observed very good union of the whole thickness of the wall at the autopsy of a woman who had died six days after the removal of the fibrocystic uterus, and where only one suture had been passed to the inch.

I used old sponges. The flat sponges which are so useful in laparotomies are so expensive that it would be quite an item if they had to be new every time. In order to clean used sponges I press them out in lukewarm water till the water remains clean; then I leave them for an hour in diluted liquor potassæ (5j to the quart of water) which draws out all the blood. In exceptional cases it may become necessary to change this solution. Then the sponges are again wrung out in plain water till it stays clean. After that I leave them for an hour in a solution of bichloride of mercury (1 to 2000), dry them in front of a fire and keep them in a muslin bag. By being kept dry they do not become rotten so soon as when they are kept in some antiseptic fluid. Before using them the next time they are left a short time in a similar solution of bichloride, wrung out, and kept in carbolyzed water (2 or 2½ per cent.) or a weak solution of bichloride (1 to 5000), during the operation.

New sponges give nearly as much trouble to prepare. Even when they are bought prepared they have to be immersed for an hour in acidulated water (hydrochloric acid 5j to every quart of water) in order to dissolve the lime concretions they contain, and be wrung out many times in water before all sand is out of them.

When my antiseptic pad is used no vaginal injections are called for unless complications should turn up.

I changed the dressing on the eighth day. It might, perhaps, even be left for ten days with advantage in such a feverless case.

For vomiting, which often is so troublesome after operations, I have

¹ Frank: *Centralblatt für Gynäkologie*, 1881, vol. v. p. 603.

² Keith: *Contributions to the Surgical Treatment of Tumors of the Abdomen. Part I. Hysterectomy for Fibrous Tumors of the Uterus*. Edinburgh, 1885, p. 14.

found black coffee and compound tincture of iodine in one minim doses every hour to be the best two remedies.

The operation of Cæsarean section has reached such a degree of perfection that I believe it is safer for the mother than *difficult* extraction through the natural passages. While we rarely see a considerably flat pelvis here, there is a form which is by no means rare, that is, a pelvis with a moderate general contraction with male type. In such cases I have several times had to perform very difficult operations resulting in the loss of both mother and child. Still, we will have to wait yet and see the result of the Cæsarean operation, since it has been surrounded by all the safeguards of modern surgery, before we decide to what extent it should replace craniotomy. So far, the results in this country are by no means satisfactory. Dr. R. P. Harris wrote me recently that there had been 11 Cæsarean operations from December 16, 1886, till February 24, 1888, inclusive of my own, in the United States, all of them by the improved method but one; saving 6 women and 8 children. 6 of the operations were performed in hospitals, saving 5 women, 5 in private practice saving only 1. Of the children, 5 were saved in the hospital cases and 3 in the private cases. All of the 5 hospital cases operated on by the improved method were successful. If we ask why this great mortality has obtained in private practice here as compared with hospital cases here and in Germany, I think I do not err in surmising that the chief reason is to be found in the defective use of antiseptics in private practice.

All the German operations I have read of were performed in hospitals, which—how different from a few years ago!—have now become the safest place to be delivered in. In Germany even midwives are held by law to use antiseptic precautions in every case of confinement. In this country antiseptic midwifery is yet in its infancy. I believe it has been adopted, more or less, in lying-in asylums, but as to private practice the progress is yet very small. Most physicians do not use any antiseptic precautions at all. Others have recourse to imaginary ones, such as carbolized soap or vaseline. The consequence is that in difficult labors infection is likely to have taken place before even the question of Cæsarean section presents itself to the mind of the physician. If we will obtain similar results as the German operators we must do as they do, decide beforehand that Cæsarean section is to be performed, desist from all attempts at delivery by other methods, avoid unnecessary vaginal examinations, operate as early as possible, and observe the strictest antiseptics before, during, and after the operation. One reason why the German hospitals have had such brilliant results is that the physician-in-chief has autocratic power. As soon as a case comes to the hospital that is suitable for Cæsarean section, his assistant calls his attention to it, and he decides at once whether and when the operation

shall be performed. If we will follow old rules and call numerous colleagues and consultants together and examine and debate, we will either not perform Cæsarean section or run great risk of losing our patients. The bruising of the soft parts of the genital tract occurring during protracted labor predisposes to puerperal inflammation, and ought, therefore, if possible, to be avoided.

In the same letter Dr. Harris writes that my case of improved Cæsarean section is No. 163 on his list of Cæsarean sections in the United States, which is the same number as he has collected of cases of symphysiotomy, by which latter 115 women were saved against 62 by the Cæsarean section. 88 children escaped under the operation of Sigault, whereas only 62 were saved in the United States by gastro-hysterotomy. Still I would warn American physicians against giving the preference to symphysiotomy over Cæsarean section. When Morisani laid the results gained by symphysiotomy before the profession at the International Medical Congress in London, 1881, I became much interested in that operation, had a Galbiati's falcetta sent me from Naples, and tried it several times on the cadaver, sometimes with success, but sometimes not. The operation is only claimed to be indicated on a certain field between the forceps and the Cæsarean section. Commonly a conjugate of $2\frac{3}{4}$ to $3\frac{1}{4}$ inches (68 to 80 millimetres), just the degree of narrowness where Sir James Y. Simpson advised to prefer turning to the forceps, is said to be its domain.¹ It is not always possible to divide the symphysis, except by means of a chain-saw, and from the histories it appears that the patients not infrequently have had to go through a protracted sickness, and sometimes have become invalids for the remainder of their lives. If anything of the kind should happen in this country, the physician would risk a suit for malpractice, and might have to pay heavy damages.

The Cæsarean section is not a particularly difficult operation, and in contradistinction to other laparotomies and most obstetrical operations it does not call for peculiar or expensive instruments. A knife, a pair of seissors, a rubber tube, needle, and silk, are the only indispensable instruments, but it is useful to have a few pairs of compression forceps. It is hardly wise to undertake such an operation without two or three assistants, which is one reason among others why Cæsarean section will not drive craniotomy from the field in private practice.

Modus operandi.—So many small changes have taken place since I described the operation in my first paper, that it may, perhaps, be found convenient by some readers to have the different steps of it briefly set forth here again.

The best time for the operation is as soon as labor pains have become strong and frequent.

¹ Luigi Mangiagalli, in *Annali di Ostetricia*, January, 1883, p. 4.

The first part of the operation is identical with that of ovariectomy. The bowels and the bladder having been emptied, and the pubes shaved, the abdomen is washed with soap, ether, and 1:2000 solution of bichloride of mercury. The vagina is syringed with two quarts of the same solution, and thoroughly rubbed off with cotton dipped in it, which is best done with a Sims's speculum, and in his position. The operator and his assistants disinfect themselves and the sponges with the solution. The instruments are kept in carbolic acid solution (two and a half per cent.). The temperature of the room ought to be about 80° F. The patient is placed on her back, on a long narrow table covered with a mattress, quilts or blankets, a rubber sheet or oilcloth, and a common sheet. Her legs are bent at the knees, and the feet placed on a stool at the end of the table, so that the assistant who takes care of the rubber tube may have easy access to the uterus without being in the way of the operator or the other assistant. She ought to be warmly dressed. She is anesthetized. The field of operation is surrounded by four towels wrung out of carbolized water (two and a half per cent.). The operator stands to her right, and his chief assistant to her left, the one who anesthetizes at her head, and the one who has charge of the constrictor at her knees.

By percussion the operator ascertains that no intestines are present between the uterus and the abdominal wall, or pushes them aside. An incision is made in the median line through the skin and the linea alba from the umbilicus to a point an inch and a half above the symphysis pubis. Bleeding vessels are clamped by means of compression forceps. Next the peritoneum is lifted up with two such pairs of forceps, and a small incision made in it, through which the index is passed into the abdominal cavity, and the peritoneum slit open to the same extent as the incision in the skin. The incision is carried through the whole thickness of the abdominal wall up to the left of the umbilicus, just enough to allow the uterus to be pulled through. The uterus may be helped out by pressure from the vagina, and one of the corners is pulled out first. Before doing so, long silk sutures are inserted at an inch distance from one another through the lips of the abdominal incision above the umbilicus. The two ends of each are clamped or tied together. As soon as the uterus is lifted out it is wrapped up in cloths wrung out of a warm solution of bichloride (1:10,000). The sutures are closed. A finger-thick rubber tube, half a yard long, is laid loosely around the cervix, and a flat sponge placed in front of and behind the uterus. The moment the operator puts the knife to the uterus, the lower assistant tightens the constrictor. An incision is made in the median line of the uterus so as to avoid the cervix, but long enough to allow the hand to be introduced and the child to be withdrawn with ease, say four and a half to five and a half inches. This incision is best begun with a convex sharp-pointed bistoury,

and continued with a probe-pointed one. If the placenta is in the line of incision it is cut through, together with the uterine wall.

If the waters have not broken, the operator tears the membrane near the lower end of the incision so as to prevent the escape of the liquor amnii, especially if it is decomposed, into the peritoneal cavity. The operator introduces his hand immediately through the rent and seizes, if possible, the head of the child, if not, the breech or the feet. The cord is tied, and the child given to a competent nurse, or, preferably, a doctor, who, if it is asphyxiated, uses proper remedies for its revival.

Now deep silk sutures are inserted half an inch from the edge through the uterine wall, except the decidua. The distance between the sutures ought to be about three-quarters of an inch. The ends of each suture are clamped or tied together.

Next the after-birth is removed by peeling the membranes off in one piece. If there are any clots in the uterus, they are turned out and the inside is washed with bichloride and dusted with iodoform.

Next the deep sutures are closed, the assistant approaching the edges by means of two tenacula and folding as much as possible of the peritoneal covering in between the edges. Thereafter fine silk sutures are passed superficially between two and two of the deep ones, only comprising the peritoneum. If this is movable enough the needle is passed in half an inch from the edge, out on the same side a quarter of an inch further in and reintroduced in the corresponding points on the opposite side of the incision. While they are being tied the assistant takes off the strain with two tenacula. A hypodermatic injection of fluid extract of ergot or two grains of ergotin is made on the extensor side of the left forearm. The rubber tube is loosened very slowly and left in place. If there is any hemorrhage from the wound that does not stop on simple pressure with a hot sponge, extra sutures are passed under bleeding spots. If this cannot be obtained by the simple interrupted suture, a so-called mattress suture may be substituted. A curved needle is introduced in the usual place, passed under the bleeding sinus and out on the same side. A similar suture is inserted in the corresponding point of the other lip, and in tying the sutures the two upper ends are united, and so are the two lower ones. The uterus is squeezed, and if the hemorrhage continues an intrauterine injection of solution of bichloride (1:5000) is given so hot that the hand can just be held in it (110° to 115° F.). In exceptional cases injection of tincture of iodine or diluted liquor ferri chloridi (1:10), or faradization might be called for. When the hemorrhage is controlled the constrictor is removed.

The peritoneal cavity is cleaned with sponges held in long forceps, and if decomposed liquor amnii, meconium, or other dangerous material has got into it, it is washed out with plenty of plain warm water. The

uterus is replaced and the omentum pressed up above it. The abdominal wound is closed with deep silk sutures comprising the whole thickness of the wall, and special attention is paid to include the aponeurosis of the muscles and the peritoneum. They are passed at intervals of an inch, and superficial ones, through the skin alone, between them.

Dressing.—The wound is dusted with iodoform, covered with a piece of gutta-percha tissue, a pad of iodoform gauze, and a thick layer of borated or salicylated cotton fastened with broad straps of rubber adhesive plaster to the sides of the abdomen. The usual belly binder is put on.

The genitals and anus are covered with a pad of absorbent cotton or lint wrung out of bichloride (1 : 2000); outside of that is placed a piece of gutta-percha tissue, then a layer of dry cotton batting, and a piece of muslin is fastened to the belly binder in front and behind.

After-treatment.—The patient is placed in a bed with bottles filled with hot water. As soon as she can swallow she is given alcoholic drinks or hot, strong coffee. Pain is subdued by small doses of morphia. After the patient has recovered from shock she may have light liquid food, and after a few days meat and other solid food. The urine is drawn with a catheter if she cannot pass it herself. The bowels are kept open by enemata or aperients.

If the temperature rises, it is combated by antipyrin, quinine, salicylic or carbolic acid, and cold applied to the head and abdomen by ice-bags or rubber coils. Vomiting is treated with coffee, tincture of iodine, bismuth, hydrocyanic acid, strychnia, creasote, carbolic acid, carbonic acid water, counter-irritation over the pit of the stomach, etc. Peritonitis is either treated with large doses of morphia or perhaps preferably with a saturated solution of a saline aperient (L. Tait). If a collection of pus in the peritoneal cavity can be diagnosticated, the lower end of the abdominal incision is reopened, an opening made in the vaginal cul-de-sac and drainage established, combined with antiseptic injections; or an incision is made in the vagina and drainage established in that way. A weak and frequent pulse due to anæmia and weakness of the heart calls for hypodermatic injections of digitalis or camphor dissolved in ether, or intravenous injection of a weak alkaline solution of chloride of sodium.¹

In favorable cases the abdominal dressing may remain undisturbed for a week or ten days. Then the sutures are removed and replaced by long, narrow strips of rubber adhesive plaster. The perineal dressing is changed every six hours, and the genitals syringed outside with bichlo-

¹ Swartze's method: Sodium chloride 6 parts, ammonium carbonate 1 part, distilled water 1000 parts. A quart, for an adult, is usually injected (Centralblatt für Gynäkologie, 1882, p. 477; 1885, p. 809). Modifications of the method are to inject the fluid into the subcutaneous areolar tissue or into the peritoneal cavity.

ride (1 : 2000). No vaginal douche is given under normal circumstances. If the lochia become fetid and the temperature rises, the vagina is syringed every three hours, and even an intrauterine injection given as in other cases, followed by an intrauterine suppository with iodoform.¹

SYRINGOMYELIA: ITS PATHOLOGY AND CLINICAL FEATURES.

WITH A STUDY OF A CASE, AND REMARKS UPON ITS DIAGNOSIS.²

BY M. ALLEN STARR, M.D., PH.D.,

CLINICAL LECTURER ON NERVOUS DISEASES, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

THERE are many diseases of the nervous system, whose history is so typical, and whose symptoms are so evident, that a brief inquiry and a cursory examination lead at once to their diagnosis. There are others, however, in which the symptoms must be discovered by a painstaking investigation, and the history must be analyzed with care in order to unravel its perplexing intricacy. It is to this latter class that syringomyelia belongs. It is an affection of the spinal cord, which has, of late, awakened much interest in Germany, but of which no record has, as yet, appeared in this country. And yet it is not less common than such a well-known disease as disseminated sclerosis, and Bäumler,³ in a recent monograph, has been able to collect 112 cases. No apology, therefore, is necessary for calling the attention of the profession to this disease, as it is very probable that many cases of it exist undiagnosed.

Syringomyelia (*σπρίγγω*, to become hollow; *μυέλος*, spinal marrow) is a condition of the spinal cord in which abnormal cavities are present within that organ. Such cavities have been recognized as a pathological curiosity for two centuries, and had been described under various names until 1838, when Ollivier⁴ proposed the name now in use. But since 1860 a distinction has been made between two kinds of cavity in the cord, and much discussion has ensued regarding the pathology of this condition. It has been shown that cavities within the spinal cord may be due either to a dilatation of the central canal, termed hydromyelus, in which case cylindrical epithelium lines the cavity; or to a disintegration of the spinal cord, occurring subsequently to an infiltration of its substance with gliomatous cells, in which case the cavity is surrounded by

¹ Antiseptic Midwifery, p. 59.

² Read before the New York Neurological Society, April 3, 1888.

³ Bäumler: Deut. Arch. f. klin. Med., Bd. xl. S. 443, 1887.

⁴ Ollivier: Mal. de la Moelle épinière, troisième édit., 1838.

dense gliomatous tissue, and its walls are made up of neuroglia and flat cells. Hydromyelus is a congenital malformation; syringomyelia is an acquired disease.

The *pathology* of syringomyelia is now pretty well understood. The disease begins with the appearance of small cells infiltrating the substance of the spinal cord,¹ near to the central canal, and either in the gray matter of this area, or in the anterior part of the posterior columns. These cells are connective tissue nuclei or embryonal cells, and their increase is accompanied by a production of fine neuroglia-like substance infiltrating or pushing aside the normal elements of the spinal cord, until there exists in this cord a glioma of greater or less extent.² Such gliomata have a great tendency to disintegration; and hence, in the centre of such an infiltrated area, a breaking down of the tissue soon begins, giving rise to the cavity. Such a cavity is usually situated in the central portion of the cord, with greatest frequency invading the central gray matter about the commissure; but often extending backward into the posterior gray horns, or into the posterior columns; and sometimes advancing forward into the anterior cornua. It is usually irregular in shape, and may be either unilateral or bilateral. The length of the cavity varies, as does also its calibre at different levels. At places it may be merely a narrow fissure in the cord, at others it may be a large opening sufficient to admit the tip of the finger. It may also have lateral diverticula, which extend upward or downward a short distance, so that in cross section of the cord two cavities are seen. It may even divide into two parallel cavities, which unite again below, or terminate in blind ends. The cavity may communicate with the central canal, but usually this is pressed forward and obliterated rather than opened into. When such a communication exists, it may appear as if the new cavity were an extension of the central canal, and due to internal pressure of fluid having produced a rupture of the wall; but this explanation of syringomyelia at first urged by Leyden,³ and receiving some support from Westphal,⁴ appears to have been erroneous. The longitudinal extent of the cavity varies greatly. It may only extend through a few segments of the lower cervical and upper dorsal regions; or it may be found at all levels of the cord. In almost all cases, the lower cervical and upper dorsal regions have been affected; and this is the favorite situation of the lesion. The wall of the cavity consists of a peculiar, thick, felt-like pigmented connective tissue, which extends into the cord for some distance beyond the blind ends of the cavity. The cavity is filled by fluid, which may be thin and serous, or bloody, or thick and gummy, or even by a hyaline mass. Such a cavity has never been known to

¹ Schultze: Virchow's Archiv, Bd. 57, S. 510.

³ Leyden: Klinik d. Rückenmark, II, S. 452.

² Also, Bd. 102.

⁴ Westphal: Arch. f. Psych., v. 90.

rupture outward, hence the internal pressure of the fluid cannot be great. But, in the majority of the cases, the pathological process appears to be gradually progressive, with occasional stationary periods, until destruction of the cord is so far advanced as to destroy life.

The *clinical features* of syringomyelia have only recently been made out. Even in 1878, Erb¹ was compelled to state in Ziemssen's *Cyclo-pedia*, that "all experience thus far teaches that the development of cavities as such produces no sort of symptoms by which it could be recognized during life; no peculiarity in the course of the disease betrays this complication."

A review of the collection of cases made by Bäumlér, sixty-six in number, in which a careful history has been completed by a full post-mortem record, seems at first to bear out this statement. For there appears to have been every variety of symptoms, from an entire absence of spinal symptoms,² the cavity having been found unexpectedly after death, to a most widespread series of nervous manifestations. But a more careful examination of the records reveals the fact that in these cases certain erroneous diagnoses appear to have been made with considerable frequency.

Thus, in cases recorded by Gull,³ Clarke,⁴ Westphal,⁵ Kahler and Pick,⁶ Schültze,⁷ Dreschfeld,⁸ Schüppel,⁹ and many others, the diagnosis of progressive muscular atrophy had been made during life, though peculiar sensory symptoms had been noted in the histories. In other cases, the diagnosis of spastic paralysis,¹⁰ of amyotrophic lateral sclerosis, of tabes dorsalis,¹¹ had been made by competent observers. Schültze¹² was the first to point to certain symptoms which might be taken as diagnostic of the disease, and it is largely to his series of articles on this subject that our clinical knowledge of syringomyelia is to be traced, although the contributions of Furstner and Zacher,¹³ of Bernhardt,¹⁴ of Oppenheim,¹⁵ of Wichmann,¹⁶ and of Bäumlér,¹⁷ deserve mention.

The situation and extent of the lesion found should give a clew to the symptoms to be expected in this class of spinal cases. The lesion is a

¹ Erb: Ziemssen's *Cyclop.*, Amer. Ed., xiii. p. 809

³ William Gull: *Guy's Hosp. Reports*, viii., 1862.

⁴ Lockhardt Clarke: *Med. Chirurg. Trans.*, li.

⁶ Kahler and Pick: *Beitrag zur Pathol. d. Central. Nervos. System.* Prag, 1879.

⁷ Schültze: *Arch. f. Psych.*, viii. S. 367.

⁸ Dreschfeld: *Brain*, viii. p. 168. Cases I. and II.

⁹ Schüppel: *Arch. f. Heilkunde*, iii. 239, viii. 113.

¹⁰ Strümpell: *Arch. f. Psych.*, x. 696.

¹¹ Oppenheim: *Charité Annalen*, xi. 1886.

¹² Schültze: *Verhandlungen d. Congr. f. Inn. Med.*, 1886, v. 435. *Zeitschr. f. klin. Med.*, xiii. 625, 1888.

¹³ Furstner u. Zacher: *Arch. f. Psych.*, xlv. 455.

¹⁴ Bernhardt: *Neurol. Centralbl.*, 1887, p. 307.

¹⁵ Oppenheim: *Charité Annalen*, xi., 1886.

¹⁶ Wichmann: *Geschwulst und Höhlenbildung. im Rückenm.* Stuttgart, 1887.

¹⁷ Bäumlér: *Deut. Arch. f. klin. Med.*, Bd. xl. S. 443, 1887.

² Simon: *Arch. f. Psych.*, v.

⁵ Westphal: *Brain*, vi. 147.

slowly progressive one; hence the disease is chronic. It is situated with great frequency in the lower cervical and upper dorsal region of the cord, hence the symptoms will present themselves most often in the upper extremities. It invades both posterior and anterior gray matter of the cord; hence, sensory disturbance and atrophic paralysis are to be expected. It starts, in the majority of cases, in the central gray matter, and this fact will warrant the expectation of trophic and vasomotor symptoms.

Looked at in this manner, it becomes evident that certain clinical features may be reasonably inferred from the lesion found. And in fact, when the recorded histories are reviewed in the light of the post-mortem findings, this expectation is found to be fulfilled.

A few cases may now be considered in order to obtain a clinical picture, and those which are chosen display the prominent features of the disease, the presence of which alone will warrant a diagnosis.

In June, 1887, Bernhardt presented to the Berlin Neurological Society¹ the following interesting case, his diagnosis of syringomyelia being supported by Remak and Oppenheim.

CASE I.—A female, forty years old, had, for several years, noticed an increasing weakness of the left arm, which had not, however, become complete paralysis. The smaller muscles of the hand had slowly atrophied. The hand appeared to be swollen and ulcerated, and bullæ were found on several spots. The ulcers and bullæ did not seem to cause the patient any pain, and had not prevented her from working, although her work had prevented them from healing. Examination showed a complete loss of sense of pain in the entire left arm and shoulder, which extended down the trunk to the mamma, and over the back to the shoulder blade, and upward to the chin. Pin pricks, the electric brush, and the hot iron, were not perceived in this area. Tactile sense was, however, quite normal, and pressure or changes of position were at once recognized, as was also the movement of the muscles produced by the electric current. The left pupil was larger than the right one. The affection was stationary.

CASE II.—Male, forty-three, admitted to Heidelberg Hospital in July, 1886. Fourteen years before he had suffered from a burning sensation back of the right ear, and soon after from right-sided headache. Twelve years before, after manual labor, he had noticed a shooting pain in the second and third fingers of his left hand, which was felt especially on coughing or sneezing; soon after a weakness of the left hand, and a wasting of the muscles between the first and second fingers were noticed. During the next three years a gradual atrophy extended over the entire hand and forearm, without rigidity, but with *main en griffe*. Then pains in the left arm on coughing began, and later a biting or sticking feeling in the region of the dorsal vertebrae, which led him to rub and scratch his back. For ten years burning and biting pains in the skin of the entire left arm, shoulder, and left half of the thorax had been present. At the same time that these began the secretion of sweat ceased in the entire left half of the head and thorax and arm. He also noticed a loss of pain sense in the left arm, and an impairment of temperature sense. The left breast was, however, unduly sensitive to cold. Fibrillary motions in the muscles were not noticed, but the fingers jerked at times. For one year past the left leg had dragged a little, and occasionally involuntary spasms and cramps in the calf and twitching of the toes were felt. The feeling in the left

¹ Bernhardt: Neurol. Centralbl., 1887, p. 307.

leg had also diminished. The same was true of the right leg to a less degree. For the past six months a slight loss of pain sense in the right arm had been present, as an ulcer on the elbow was not noticed by him. Occasional headaches, constipation; no other symptoms.

Examination.—Right pupil larger than the left. Right ear and back of head insensitive to pain or to cold. Left ear insensitive to pain, but feels cold or heat. Left arm atrophied in its entire extent except the deltoid, biceps, triceps, and supinator longus. The left shoulder muscles were not atrophied, except the trapezius, which was only normal in its upper part. Sterno-mastoid, supra- and infra-spinatus, teres, latissimus dorsi, pectorals, and rhomboid were normal, but the serratus magnus was very much atrophied. Right arm normal, except for slight flabby condition of the hypothenar muscles, and adductor pollicis, of the extensors and flexors of the wrist, of the outer half of the biceps. The deltoid was rather weak and soft. The upper third of the trapezius also weak and flabby. The supra- and infra-spinatus were atrophic, but other shoulder muscles were normal. Fibrillary contractions are noticed in the muscles, but no rigidity. Tremor of fingers of left hand. The left leg was smaller than the right and slightly rigid, but its powers were good. There was a scoliosis of the dorsal region toward the left. The atrophied muscles showed complete reaction of degeneration to the electric current. The measurements showed the left arm to be small, and even the circumference of the fingers was one to two centimetres less on the left side.

As to sensation, while touch, tickling, and sense of location were perfect on the left arm, there was total loss of pain sense, and sense of temperature to heat and cold. The same was true of the right arm, and of both halves of the thorax down to the sixth rib. In the sixth intercostal space a small area was oversensitive to cold and heat. Hyperæsthesia to cold was also noticed in lower body and upper right thigh. Right half of scrotum and right testicle insensitive to pain or temperature. Where pain sense was lost, faradic sensation was also lost. Tendon reflexes of the arm lost, of the left leg increased with foot clonus. Abdominal and mammillary reflexes wanting. Sweat suspended on the left half of the head, neck, and breast. Diagnosis by Schülz is syringomyelia.—Fr. Schülz, *Zeitschr. f. klin. Med.*, xiii.

CASE III.—Male, thirty-seven, began to suffer four years before his death from atrophy of the muscles of the left hand and forearm. Numbness and formication, and feeling of cold then began in the right arm and hand, and loss of power gradually developed in it, with tremor, and inability to write; until both upper extremities were weak and shrunken. He then suffered from headache, vertigo, burning sensation in the right half of head and face, and, finally, paræsthesia over the entire body. He died of bulbar symptoms. The autopsy showed a cavity nine centimetres long in the cervical portion of the cord, invading both anterior and posterior horns, and below it a gliosarcoma seven centimetres long extending into the dorsal region.—Westphal, *Arch. f. Psych.*, v.

CASE IV.—Male, thirty-seven, first symptoms ten years before his death. Analgesia, formication in the entire right side with trophic disturbances in the right hand; loss of tendon and skin reflexes both right and left; total loss of temperature sense in the analgesic area. Tactile sense preserved. Right leg somewhat weak, and gait unsteady. Tremor of tongue. Facial paresis. Other symptoms referable to dementia. The most marked symptoms for eight years were vasomotor and trophic in nature. The skin became thick, the nails were hindered from growth, ulcerations of painless kind developed and healed with difficulty. Ankylosis in the fingers followed joint affections. Wherever the skin was rubbed, a red hue would appear, and soon become a broad urticaria-like elevation. Extensive syringomyelia of entire cord was found.—Furstner and Zacher, *Archiv. f. Psych.*, xiv.

CASE V.—Male, thirty-three, complained for a long time before his death of anæsthesia in both his hands and a gradually increasing weakness, the right hand being weaker than the left. Before death, extensive atrophy with paralysis was present in the arms, and the legs were also paralyzed. The upper part of the spinal cord was broad and fluctuating. This was due partly

to an infiltrated glioma, and partly to a cavity with a lining membrane in this region.—Wipham, *Lancet*, 1881, i. 418.

CASE VI.—Male, twenty-four, three years before his death, fractured his right arm while kneading dough, and one year after, fractured his right radius while at the same occupation. Eight months before his death, fractured his fourth and fifth left metacarpal bones, without any known cause. All these fractures were incurred without pain and the swelling around them was not tender, and pressure on the parts did not cause pain. He complained for a long time of numbness of the fingers.

The autopsy showed the existence of central glioma with a cavity. This invaded only the central region of the spinal gray matter and the posterior horns from the medulla oblongata to the mid-dorsal region. The anterior horns were in no way affected. The columns of Clarke were involved, but no secondary degeneration in the direct cerebellar tracts was to be found.—Schültze: *Virch. Arch.*, Bd. cii. 435.

CASE VII.—A young man suffered from an inflammation of the right hand which extended up to the elbow and assumed a phlegmonous character, but was not painful. Recovery ensued, but there remained a stiffness in the smaller joints. A few months later, the left hand was affected in the same manner. A careful examination revealed the fact that in addition to a muscular atrophy in the hands, there was loss of sensation to pain and to temperature in the entire arm, while touch was normal. Later the patient developed again abscesses in the hands, but as in spite of these and of ulceration he persisted in working, he died of pyæmia.

A large cavity was found in his spinal cord extending through the cervical and dorsal regions which had partially destroyed both the anterior and posterior gray horns and central gray substance.—Schültze, *Verhandl. d. Cong. f. Inn. Med.*, 1886, v. 438.

CASE VIII.—Female, thirty-five years old, noticed immediately after a fall, weakness and numbness of the legs, pain in the back, and difficulty in passing water. At first, she was unable to walk, but soon recovered this power. During the following three years, there developed gradually increasing weakness of the legs, shooting pains, marked ataxia, and loss of all forms of sensation with loss of reflexes and incontinence of urine. A girdle sensation with anæsthesia was present from the fourth to the eighth rib. Arms and head free from symptoms. The anæsthesia of the legs continued, but cold was felt as heat in them. Reaction of degeneration was found in the left peronei muscles. Finally, bedsores and cystitis caused her death. The autopsy showed a glioma, at the level of the fourth to sixth dorsal segments, within which a cavity existed. From this glioma the cavity extended downward through the entire dorsal region, occupying the posterior columns of the cord. These columns were degenerated in their entire length.

The chief interest in this case is in the etiology, the influence of trauma being unmistakable. The changes in the cord were the result of glioma.

The author adds to this the history of three cases in which progressive muscular atrophy of the arms had been associated with loss of temperature and pain sensations in the hands, arms, and thorax, and with peculiar bullous eruptions on the fingers, and he calls attention to the fact that none of these patients was aware of the disturbance of sensation.—Oppenheim, *Charité Annalen*, xi.

From these cases, it must be evident that certain symptoms in a certain combination are characteristic of syringomyelia. These are, first, progressive muscular atrophy, with paralysis affecting some or all of the muscles of one limb, and usually extending to the opposite limb, and to the body, sometimes attended by a reaction of degeneration in the paretic muscles. Secondly, vasomotor and trophic disturbances in the affected limb, consisting of cyanosis, coldness, bullous eruptions, ulcera-

tion, abscesses, and even atrophy and fragility of the bony structures, and a diminution in the excretion of sweat. Thirdly, peculiar sensory disturbance, consisting of a loss of the sensations of pain, and temperature in the atrophied part, while the senses of touch and location may be preserved.

The extent of these symptoms in any one case deserves a moment's consideration. It is now admitted that each group of cells in the anterior horns of the cord presides over a combined physiological movement and governs several muscles which act together, to carry out a special act.¹ Destruction of these groups of cells produces different effects according to the groups affected.² Those in the upper part of the cervical enlargement are related to the act of raising the hand to the mouth, an act which calls for simultaneous contractions in the deltoid, biceps, brachialis anticus, and supinator longus muscles; and when this act is arrested, the so-called upper arm type of paralysis is present, and the muscles named are paralyzed. Those in the middle of the cervical enlargement are especially related to the act of placing the hand on the anterior or posterior surface of the thigh, the scapular muscles, the flexors and extensors of the forearm and wrist being called into play. Paralysis of these groups of cells affects the muscles around the scapula and on the forearm. Those in the lower part of the cervical region are especially related to the hand, its flexion and extension, the motion of the intrinsic palmar muscles being governed by these groups. Hence, their destruction prevents the finest acts of thumb and fingers, or the proper use of the hand, causing the lower-arm type of paralysis.

A similar distinction is made in the action of groups of cells in the lumbar enlargement, the upper region presiding over flexion and extension of the thigh, the middle part governing the rotation, flexion, and extension of the leg, and the lower third controlling the movements of the foot. Certain reflex acts are also governed by these cells differing at different levels. The character of the paralysis and loss of reflex in any case of syringomyelia, together with the extent of atrophy in the muscles, will, therefore, depend upon the level of the spinal cord which is involved, and will vary much in different cases. And even when an entire limb is paralyzed, it may be found that some of the muscles are not wholly destroyed, thus indicating that at certain parts of the enlargement of the cord, the cavity is smaller than at others. The paralyzed muscles sometimes exhibit the reaction of degeneration, an important diagnostic symptom when present.

About the distribution of vasomotor and trophic symptoms little can be stated exactly, though they are always limited to the analgesic area.

¹ Bemak: *Arch. f. Psych.*, ix. p. 550.

² Ferrier: *Brain*, iv. p. 223.

In Case VI., it will be remembered that fragility of the bones was the only symptom of the syringomyelia, and in Case VII. cellulitis with abscesses led the patient to consult a surgeon (Czerny) rather than a physician. The forms of trophic and secretory disturbance present have been already mentioned.

The sensory symptoms require a word of explanation. When the gray matter of the posterior horn is alone affected, the disturbance is limited to a loss of the power of perceiving pain, and heat or cold. When the posterior white columns are affected, tactile and muscular sense may also be disturbed, but are never wholly lost. As to the distribution of these sensory symptoms, no exact statements are made in the histories given, the analgesic area not having been exactly mapped out. But the distribution to be expected will depend in any case on the level of the spinal cord which is destroyed. Our knowledge of the location of sensory functions of the various segments of the cord has been greatly increased of late by the contributions of Ross and Thorburn.¹ They have shown that if the upper part of the cervical region, fifth segment, is destroyed, the area of anæsthesia extends along the outer side of arm and forearm, from the shoulder to the wrist. If the middle cervical region, sixth to seventh segments, is affected, the skin of the anterior part of the forearm, and both surfaces of the outer half of the hand are rendered insensitve. If the lower cervical region, eighth cervical to second dorsal segments, is diseased, the anæsthesia extends along the inner side of hand, forearm, and arm, up to the axilla, the highest area of anæsthesia being related to the lowest of these three segments. Lesions in the dorsal region produce bands of anæsthesia at their level around the trunk. Lesions in the lumbar enlargement in its upper part cause anæsthesia of the front of the thigh and leg, especially on their outer surfaces. The skin of the foot, of the back of the leg, and of the back and inner part of the thigh, is related to the lower part of the lumbar enlargement, the lowest extremity of the spinal cord receiving sensations from the anus and posterior part of the scrotum.

Since the area of analgesia in syringomyelia will correspond to this location, it deserves to be carefully studied.

The following diagram, which was originally prepared in 1884,² from data gathered from comparative anatomy, physiological experiment, and records of spinal cord diseases, especially from the study of anterior poliomyelitis, transverse myelitis, and syringomyelia, and which has been somewhat modified and amended in view of facts published within the past four years, may aid in the localization of lesions such as those under discussion.

¹ Ross and Thorburn : *Brain*, Jan. 1888.

² Starr : *Amer. Journ. Neurol.*, August, 1884.

LOCALIZATION OF THE FUNCTIONS OF THE SEGMENTS OF THE SPINAL CORD.

Segment.	Muscles.	Reflex.	Sensation.
2d and 3d cervical.	Sterno-mastoid. Trapezius. Scalenl and neck. Diaphragm.	Hypochondrium (?). Sudden inspiration produced by sudden pressure beneath the lower border of ribs.	Back of head to vertex. Neck.
4th cervical.	Diaphragm. Deltoid. Biceps. Coraco-brachialis. Supinator longus. Rhomboid. Supra- and infra-spinatus.	Pupil. 4th to 7th cervical. Dilatation of the pupil produced by irritation of the neck.	Neck. Shoulder, anterior surface. Outer arm.
5th cervical.	Deltoid. Biceps, coraco-brachialis. Brachialis anticus. Supinator longus. Supinator brevis. Deep muscles of shoulder-blade Rhomboid Teres minor. Pectoralis (clavicular part). Serratus magnus.	Scapular. 5th cervical to 1st dorsal. Irritation of skin over the scapula produces contraction of the scapular muscles. Supinator longus. Tapping its tendon in wrist produces flexion of forearm.	Back of shoulder and arm. Outer side of arm and forearm to the wrist.
6th cervical.	Biceps. Brachialis anticus Pectoralis (clavicular part) Serratus magnus. Triceps Extensors of wrist and fingers. Pronators.	Triceps. 5th to 6th cervical. Tapping elbow tendon produces extension of forearm. Posterior wrist. 6th to 8th cervical. Tapping tendons causes extension of hand	Outer side and front of forearm. Back of hand, radial distribution.
7th cervical.	Triceps (long head). Extensors of wrist and fingers. Pronators of wrist. Flexors of wrist. Subscapular. Pectoralis (costal part). Latissimus dorsi. Teres major.	Anterior wrist. 7th to 8th cervical. Tapping anterior tendon causes flexion of wrist. Palmar. 7th cervical to 1st dorsal. Stroking palm causes closure of fingers.	Radial distribution in the hand. Median distribution in the palm, thumb, index, and one-half middle finger.
8th cervical.	Flexors of wrist and fingers. Intrinsic muscles of hand.		Ulnar area of hand, back and palm, inner side of forearm.
1st dorsal.	Extensors of thumb. Intrinsic hand muscles. Thenar and hypothenar eminences.		Inner side of forearm and arm to axilla.
2d and 12th dorsal.	Muscles of back and abdomen. Erectores spinæ.	Epigastric. 4th to 7th dorsal. Tickling mammary region causes retraction of the epigastrium. Abdominal. 7th to 11th dorsal. Stroking side of abdomen causes retraction of belly.	Skin of chest and abdomen, in bands running around and downward corresponding to spinal nerves. Upper gluteal region
1st lumbar.	Ilio-psoas. Sartorius.	Cremasteric. 1st to 3d lumbar. Stroking inner thigh causes retraction of scrotum.	Skin over groin and front of scrotum.
2d lumbar.	Ilio-psoas. Sartorius. Flexors of knee (Remak). Quadriceps femoris.	Patella tendon. Striking tendon causes extension of leg.	Outer side of thigh.
3d lumbar.	Quadriceps femoris. Inner rotators of thigh. Abductors of thigh	Bladder centre. 2d to 4th lumbar	Front of thigh.
4th lumbar.	Abductors of thigh. Adductors of thigh. Flexors of knee (Ferrier). Tibialis anticus. Peroneus longus.	Rectal centre. 4th lumbar to 2d sacral. Gluteal. 4th to 5th lumbar Stroking buttock causes dimpling in fold of buttock.	Inner side of thigh and leg to ankle. Inner side of foot.
5th lumbar.	Outward rotators of thigh. Flexors of knee (Ferrier). Flexors of ankle. Peronei. Extensors of toes.	Achilles tendon. Over extension causes rapid flexion of ankle, called ankle clonus.	Outer side and back of foot and leg.
1st to 5th sacral.	Flexors of ankle. Long flexor of toes. Intrinsic muscles of foot.	Plantar. Tickling sole of foot causes flexion of toes and retraction of leg	Thigh, except inner side, gluteal region. Perineum and back of scrotum; anus.

It can readily be imagined that great variations will present themselves in the symptoms of syringomyelia, in accordance with the lateral extent of the cavity. Motor symptoms will be prominent only when the anterior cornua are invaded. But this is not infrequent; for, out of fifty-six cases analyzed by Bäumler, one or both anterior cornua were affected in twenty-four. Sensory disturbance characterized by loss of pain and temperature senses will occur when the posterior cornua are invaded. Thirty-two out of fifty-six cases presented such a lesion. Vasomotor and trophic symptoms are usually to be expected, since the central gray matter is almost always invaded. The cavity may extend so widely as to destroy, or, by its fluid contents, compress the white columns around the gray matter. In this case, if the lateral columns are affected in the upper part of the cord, symptoms of spastic paralysis will develop in one or both legs; and this was the case in one of Schültze's patients, while in one of Strümpell's spastic paraplegia was the diagnosis made. If the posterior columns are invaded, symptoms of ataxia will present themselves, as occurred in the case of Oppenheim cited, as well as in several others. In any case of spinal cord disease in which an anomalous combination of symptoms is present, the possibility of syringomyelia should not be overlooked.

With these facts regarding the clinical history of syringomyelia in mind, I ask your attention to the following case which has been under my observation since September, 1885, and in which, until recently, no satisfactory diagnosis had been made.

CASE IX.—A feeble, poorly nourished woman, aged twenty-eight, of good family history, and without syphilis or previous illness, excepting an attack of cerebro-spinal meningitis at the age of six, first noticed the beginning of her present symptoms in 1879. Then she suffered from numbness and cold in her right hand, and soon found the hand growing weak and thin, and also quite insensitive to pain. These symptoms gradually extended up the arm and invaded the shoulder, and the muscles of the thorax and scapula, the skin of these parts becoming insensitive as the muscles atrophied. As the muscles became weak about the thorax, lateral deviation of the spinal column developed, the convexity being to the right. The hand assumed and retains the position of *main en griffe*, although the rigidity which she says was present during the first two years has now entirely passed away. The entire upper extremity has been wholly useless for four years. She has always noticed a trembling of the muscles. Within three months of the onset she had a bad burn on the arm, which was three months in healing, but which gave her no pain. In July, 1885, she had a peculiar attack. While standing quietly, she suddenly felt a numbness and tingling in the right arm, beginning at the elbow and extending up to the shoulder, neck, and face, with a feeling as though her face were drawn to the right side. This was attended by headache and vertigo, so that she felt faint, and had to sit down for a few minutes, and afterward felt quite weak for some days. She has suffered from no other symptoms, and no return of the attack.

Present condition.—The eyesight is good and optic disks normal, and there is no insufficiency of the ocular muscles. But the right pupil is smaller than the left, and the right eye is less widely opened, the upper lid falling slightly, and the eyeball being apparently slightly retracted. There is no facial or lingual paresis, but in the right half of the tongue there is a marked tremor. The sensation on the right side of the face, as regards temperature and pain, is less acute than on the left side, and cotton feels differently, as she expresses it, "rougher" than on the left side. Pulse and respiration are regular and normal, and she has never noticed polyuria. The right upper extremity, including the muscles of the thorax, scapula, and back, is completely paralyzed and very much atrophied, but does not exhibit the reaction of degeneration. The deltoid and palmar muscles are most affected, and their faradic excitability is diminished. Galvanic excitability is also diminished; *e. g.*, in deltoid $KCC=4ma$. $AnCC=7ma$. The trapezius is affected, and the supraspinatus also, the latter being totally atrophied. The scaleni and splenii are not involved. The wall of the thorax is markedly thinned. The lateral deviation of the spine with elevation of the right shoulder is not due to caries, as it is not fixed, and there are no painful points. It is the result of muscular weakness in the spinal muscles. The arm hangs motionless, and all the muscles are relaxed; the only movement possible is a very slight flexion and extension at the elbow, the hand is in the claw position. Constant fibrillary tremor in the atrophied muscles is evident. No reflexes can be obtained in the arm. Sensation is very much impaired in the entire arm and upper half of the thorax. Temperature and pain sensations are suspended, but contact is perceived. Tactile sense, however, is somewhat less than on the other side; but muscular sense is not at all impaired. She feels pressure, and knows at once the position in which the fingers or forearm is placed. She can appreciate very slight differences of weight very accurately. The entire extremity is cold to the touch, cyanotic, and the skin is mottled, and various scars give evidence of previous ulcerations and burns, which do not appear to have given her much annoyance, probably because they were painless. The fingers do not appear to be smaller than those of the other hand, but the growth of the nails is impaired, and they are very brittle. She does not perspire on the right side. The left arm is not paralyzed, but is insensitive to heat. The right arm and forearm are each one and one-half inches less in circumference than the left one. The right breast is less full, fat, and firm than the left one. The right leg does not appear to be at all weak or atrophied, but the patellar tendon reflex is very much exaggerated, and ankle clonus is easily obtained. The sensation in the right leg differs slightly from that in the left leg, cold and heat being more acutely felt, and the cotton feeling, as in the face, rougher on that side. The only symptom in the left leg is a slight increase in the patellar tendon reflex. No other symptoms. Condition has been stationary for three years.

It will be noticed that the symptoms are those of progressive muscular atrophy in the entire right upper extremity, with implication of the sympathetic fibres from the cord destined to the eye, and with the added symptoms of a sensory and vasomotor and trophic character in the arm and thorax, and with slight analgesia of the face and tremor of the tongue.

The case is, therefore, more than one of progressive muscular atrophy. It is also more than one of anterior poliomyelitis, for in that disease, even when its onset is not acute, sensory symptoms are absent. Nor will the supposition of an unilateral cervical pachymeningitis, if such a thing is possible, explain the case, for there never has been pain or stiffness in the neck, and the rigid position assumed in that disease by the hand, in consequence of irritation of the motor nerves at the point of meningitis, has not been present. A unilateral tumor pressing upon the spinal nerves and cord may also be ruled out; for such a tumor should have given rise to distinct vertebral symptoms, and would hardly have come to a spontaneous standstill. It would also have involved the sensory nerves, suspending all their functions, not selecting some alone.

Amyotrophic lateral sclerosis might well be considered, in view of the fact of the increase of tendon reflexes in the right leg, and of the evident implication of the trigeminus and hypoglossus. But this disease is, so far as known, bilateral; it is progressive, and terminates fatally in three years, and the symptoms of spastic rigidity in the legs develop early. Nor will the supposition of a patch of disseminated sclerosis in the cord prove more satisfactory. For aside from the fact that there are no symptoms of other patches elsewhere, and a single patch would hardly occur alone, there is no sign of intentional tremor so characteristic of multiple sclerosis, and further, this disease does not produce such a complete paralysis. A unilateral myelitis being unknown, it becomes evident that every spinal disease, excepting an intramedullary tumor can be ruled out. But syringomyelia is the termination of an intramedullary glioma, and, hence, is the most probable diagnosis. Mention must be made of neuritis as a possible cause of the symptoms, since neuritis from toxic or infectious causes, or from injury, sometimes produces somewhat analogous symptoms. It may be stated, however, that, in neuritis, all sensations are equally affected, and there is no case on record where pain and temperature senses have been lost with preservation of touch and of the muscular sense. Furthermore, neuritis runs a rapid course. And, aside from this fact, the existence of increased tendon reflexes in the legs, and of some facial anæsthesia, and of sympathetic paralysis of the eye, necessitates the assumption of a spinal lesion.

I think, therefore, that by exclusion the diagnosis of syringomyelia may be reached in this case, especially as it corresponds quite closely to cases on record in which that condition has been found after death. And one further point seems to support this conclusion, viz., the occurrence of the peculiar attack of sudden unilateral paræsthesia with vertigo and headache. Such attacks are mentioned in the histories of several other cases, but no explanation has been offered. Is it possible

that they indicate a sudden breaking down of granular tissue with an extension of the cavity?

If the diagnosis of syringomyelia be accepted in this case, what is the location of the cavity? Since the symptoms began in the hand, it is probable that the glioma commenced in the eighth cervical and first dorsal segments of the spinal cord. As the entire muscular tissue of the extremity is now involved, the gray matter of the anterior horn must be affected as high as the fourth cervical segment and as low as the mid-dorsal region. Since the face is somewhat anæsthetic, we must suppose that a fissure extends upward through the posterior horn of the cord into the medulla, where it affects the ascending root of the fifth nerve. Such extension of the cavity into the medulla is not infrequent, it having been observed in one-third of the cases collected by Wichmann. As the symptoms so far have been unilateral, it is evident that the right half of the cord alone is involved.

As to the causes of syringomyelia very little is known. Trauma has been found to precede the development of the symptoms in several cases so immediately as to have been a factor in the etiology; and experimental injuries to the cord in dogs have been followed by a similar condition, as Eichholt and Naunyn observed. Over-exertion and cold have also been assigned as causes. That the disease has developed subsequently to the occurrence of fevers, viz., typhoid, intermittent, and rheumatic, and that it has affected syphilitic individuals can hardly be taken as indicative of a causal relation between the events.

Even less can be said regarding treatment. Nothing is known to affect the course of the disease, which may progress slowly, or come to a standstill, or terminate suddenly. The remission in the symptoms supposed by Wichmann to be diagnostic is not present in the majority of cases. When it does occur, it is not to be ascribed to any special line of treatment.

NO. 22 WEST FORTY-EIGHTH STREET, NEW YORK.

HYSTERORRHAPHY.

BY HOWARD A. KELLY, M.D.,
OF PHILADELPHIA.

MORE than a year and a half has now passed since I prepared my paper for the Philadelphia Obstetrical Society, read upon November 4, 1886, describing a new operation for the correction of certain cases of malposed uteri, to which I gave the name "Hysterorrhaphy," the essential feature of the operation consisting in the suspension, or attachment, of the misplaced uterus by means of suture, through the cornua

or broad ligaments close to the uterus, in such a manner as to hold the fundus uteri permanently in anteposition. I there expressed my purpose to "formulate the rules for the adoption of a new operative procedure in the treatment of intractable cases of retroflexion, and of prolapsus uteri; the method proposed being applicable only to cases in which the local disease has rendered the patient's life miserable, and all ordinary means of relief have been found useless."

Since then a widened experience with the operation, and a careful study of a number of cases, have led me to modify some of the details, while the general principle of maintaining the uterus by means of sutures passed near the body, holding it in antefixation, remains the same. In an admirable paper by Dr. Sänger [*Centralblatt für Gynäkologie*, Nos. 2 and 3, 1888], entitled "Ueber operative Behandlung der Retroversio-flexio uteri," he clearly demonstrates the necessity of adopting some other procedure for the relief of many cases of retroverted and retroflexed uteri, than treatment by pessaries, inasmuch as the latter fails to relieve so large a number as twenty per cent. of all the cases.

He cites in this paper seven cases of his own operated upon by this method, two of which I published in my paper above referred to. [These were given me June 25, 1886, when visiting Dr. Sänger in Leipsic. Neither he nor I had then any idea that Olshausen was also interested in this subject.] In CASE I. [May 7, 1886], the retroflexion was overcome by combined action through the vagina and abdominal cavity, and the uterus then stitched to the lower part of the abdominal wound, by means of two silver ligatures passing through the right ligamentum latum, close to the cornua uteri. After recovery the uterus remained anteverted. In CASE II. [May 13, 1886] the patient, thirty-eight years old according to my paper, twenty-eight years old according to Sänger's recent account, had a retroflexion which had long been treated in vain by pessaries. At the time of the operation the uterus was stitched into the abdominal wound, as in the first case, and afterward remained anteverted.

The three following cases are related from notes kindly given to me while visiting Dr. Sänger in Leipsic, in the summer of 1887.

CASE III. *Ventro-fixatio uteri. Salpingo-oöphorectomy.*—Frl. Oh., twenty-six years old, a well-built woman, has for some years been under gynecological treatment for retroflexed uterus, associated with unusually severe and constant local disturbances, increasing at the time of menstruation, associated with hysteria and various neuroses. This was one of those rare cases in which no other basis for the serious local and general psychic disturbances could be found than a mobile retroflexed uterus moderately enlarged. Treatment by pessaries did not relieve, and the constant manipulation of the organs seemed to have led the patient into habits of masturbation. She was incapable of attending even to ordinary household duties, and at the time of menstruation remained in bed on account of the profuse loss of blood, menstrual pains, and the feeling of utter weakness and mental depression. Several gynecologists had

already proposed to relieve her difficulties by removal of the ovaries, or even to take out the entire uterus. To give the treatment by pessary a fair trial, Säger put the patient under chloroform, anteposed the uterus bimanually, and inserted a Thomas pessary. In two days the uterus was found again in its old position, and further treatment with other forms continued unsuccessful.

In spite also of the protracted rest from all treatment which was given the patient, the psychic disturbances grew worse and worse, she became melancholic, and repeatedly attempted suicide, for which she was finally admitted to the insane clinic of the university. Her disturbance was here considered to be of an hysterical nature depending upon pelvic disease; accordingly, Säger determined, in consultation with Professor Flechsig, to replace the uterus and attach it to the abdominal wall. The operation was performed December 4, 1886. *Three silkworm sutures were passed through the round ligaments and into the recti muscles* about three-quarters of an inch on either side of the incision. The sutures were not fastened until all had been passed. The uterus then lay close upon the base of the bladder, and so close to the abdominal wall that it was impossible for a knuckle of intestine to slip in between. During the attachment it was strongly bent ["feathered"], and was held in place with some exertion. *Tubes and ovaries were not removed*, as they were in a healthy condition. Pain was experienced for the first few days after operation, catheterization was necessary for eight days, although there was no tenesmus, and the patient left her bed in three weeks, when the pessary was removed, and the local difficulties had disappeared. A painless menstruation was established, lasting four days, with but little loss of blood, in marked contrast to the previous habit of one week. After three months the uterus was found to be normally anteverted, quite small, and quite movable in a vertical direction in spite of the lateral fixation. The patient's bodily condition has improved remarkably, and although her nervous system has not completely recovered, she no longer requires treatment for any pelvic difficulties whatever.

CASE IV. *Epilepsy; retroflexed uterus; chronic oöphoritis. Operation: castration, and fixation of the uterus to the abdominal wall.*—Mrs. F., twenty-three years old, married seven years, sterile. Since her twelfth year she suffered from typical hereditary epileptic attacks, lasting two minutes at a time, followed by a coma lasting from two to three hours; these were increasing in frequency and violence, and were especially noticeable shortly before and after the menstrual period. She complained of constant pain in the lower part of her body, and in the sacral region of neuralgia, and very violent dysmenorrhœal pains. The family physician referred her to Säger, under the belief that the relief of the pelvic difficulties would also influence favorably the epileptic attacks. A palliative treatment, continued for several weeks, was found to be useless. The uterus was retroflexed at an obtuse angle, but slightly movable, and both ovaries were in Douglas's cul-de-sac, swollen and very sensitive. Attempts to raise the uterine appendages failed. While the case seemed hopeless upon other grounds, the probabilities of relief through operation were good; accordingly, Säger operated May 26, 1887, with the concurrence of Prof. Flechsig, into whose clinic the patient had first been brought. Some light adhesions were broken up, and the ovaries easily removed, and a few adhesions between uterus and rectum were separated. *Two silkworm sutures were used to attach the*

cornua uteri to the abdominal wound. After knotting the sutures, a space the breadth of a finger was noticed between uterus and bladder, into which knuckles of intestine might slip, on which account the sutures were cut, and the uterus again attached somewhat below the former point, so that it now lay more closely upon the bladder. The patient suffered afterward from cramping pains and restlessness, and for a few days after the operation with attacks of apathy and hysteria. The urine was drawn for a week. The incision healed favorably, with the exception of an abscess at the lower angle.

About eight weeks after the operation the uterus was found to be normally anteverted, and very small and movable, in spite of the ante-fixation. After three months the patient was dismissed in a greatly improved condition, free from all pelvic disease. The epileptic attacks had not improved; the gain, however, by means of operation, in the relief of the local difficulties and the improvement of the hysterical attacks, as well as the generally improved condition, was great.

CASE V. *Gonorrhœal infection; adherent, retroflexed uterus, pyosalpinx, and adhesive pelvic peritonitis. Operation: salpingo-oophorectomy; attachment of the uterus to the abdominal wall.*—This patient was operated upon, after two years of palliative treatment, on the 12th of February, 1887. Ovaries and tubes of both right and left sides were removed after separating a number of intestinal adhesions, in which they lay, encapsulated. After freeing the attachments of the uterus to the rectum, the stumps at the cornua were drawn upward, and sutured one and one-half inches above the symphysis, and three-quarters of an inch from the line of incision to the abdominal wall by means of two silver sutures passing through the points of origin of the tubes and round ligaments, and carried deeply into the parietal muscles. Into an opening which remained between the uterus and bladder a part of the descending colon became fastened, and it was necessary to cut the sutures of the left side and at the left cornu uteri and reattach them in such a way as to diminish the opening. The patient had no urinal difficulties whatever; passing water freely from the first day. The incision healed completely and perfectly, and at the last examination, five months after the operation, the uterus was found to be anteverted, quite small, and movable. Her appearance was blooming, and she complained of no difficulties whatever. The result was in this case faultless.

In addition to these cases just cited, Säger has, since I last saw him, operated upon two others.

CASE VI.—(November 8, 1887.) A case similar to the last, suffering from gonorrhœal infection, with disease of both appendages, and an adherent retroflexed uterus. *The uterus was fastened by means of two silver sutures, close over the bladder, to the anterior abdominal wall.* The case recovered without any unfavorable symptoms, having no trouble with her bladder, and was dismissed twenty days after the operation well, with a uterus anteverted, small, not sensitive, and still firmly fixed to the anterior abdominal wall.

CASE VII. was a woman upon whom he had already operated, shortening the round ligaments. On the left side the tissue removed proved to be a portion of the cremaster muscle instead of the round ligament, while on the right a piece three inches long was drawn out and cut off.

Inasmuch as this operation failed, and the patient insisted so earnestly upon securing some relief from her sufferings, which rendered her incapable of work, after a number of trials with various pessaries, Sänger determined upon the abdominal fixation of the uterus. Owing to the great thinness of the abdominal walls, and the readiness with which the uterus could be handled by combined manipulation, the operation promised to be one of comparative simplicity, but in this it was deceiving, as the fundus uteri was covered with intestines, and the incision had to be lengthened to about four inches, to keep the intestines away from the uterus, by means of a napkin and two sponges.

Three silkworm sutures were passed through the round ligaments, and the broad ligaments close to the sides of the uterus, and the organ thus attached to the anterior abdominal wall. The case recovered without any unfavorable reaction. The pessary which she had been wearing was removed two days before dismissal. The uterus had already grown very small, and quite movable. The fundus uteri could be seen moving through the abdominal wall. All of her difficulties had completely disappeared.

Sänger remarks, in conclusion, that all of his seven cases of ventrofixatio uteri retroflexi are cured. In the third and seventh of these operations, the procedure was one of hysterorrhaphy pure and simple, while, in the others, hysterorrhaphy was performed coincidently with the removal of diseased appendages.

The four following cases I have received from Professor Paul Zwiefel, of Leipsic, through the kindness of Dr. Döderlein. The analysis speaks for itself.

CASES OF PROF. ZWIEFEL, OF LEIPSIC.

No.	Reason for operation	Nature of operation.	Sutures.	Height of attachment.	Appendages.	Result.
VIII. Sch.	Retroflexed uterus; difficulties caused by pessaries	Laparotomy and hysterorrhaphy.	Two, of silkworm gut	Immediately over and on both sides of the symphysis.	Not removed.	Manifestly cured only three weeks after the operation.
IX. U.	Retroflexed uterus; peri- oöphoritis	Laparotomy and hysterorrhaphy	Two, of plaited silk.	Immediately over and on both sides of the symphysis.	Both ovaries and tubes removed, and stumps fastened by ligatures to the abdominal wall.	Entirely relieved of all difficulties.
X. H	Adherent retroflexed uterus.	Laparotomy and hysterorrhaphy.	Two, of silkworm gut.	Immediately over and on both sides of the symphysis	Nothing removed.	Entirely relieved of all difficulties.
XI. V	Retroflexed uterus and hysteria.	Laparotomy and hysterorrhaphy.	Two, of silkworm gut	Immediately over and on both sides of the symphysis	Nothing removed.	Patient insane. Recovery from the operation. No pelvic difficulties, but many general complaints.

Dr. Staude, of Hamburg, has given me the record of the following case, unpublished, in which he performed the operation of hysterorrhaphy:

CASE XII.—The patient, a married woman, forty-one years of age, had had one child sixteen years before. She came to Dr. Staude complaining of pain in the left side of the pelvis and in the ovarian region, and of much distress on sitting down. Examination revealed a uterus fixed in retroflexion. It was impossible to reposit the uterus after putting the patient under an anæsthetic. As the woman was incapable of pursuing her calling, and Dr. Staude could not relieve her in any other way, he proposed releasing the adhesions by an abdominal section, and curing the retroflexion at the same time, by attaching the uterus to the abdominal wall. This operation was performed on the 12th of April, 1885, the proposition being, first, *to release the uterus, and then, after extirpating both ovaries, to attach the uterus to the anterior abdominal wall* by means of the stumps of the broad ligaments. The separation of the attached retroflexed uterus, after a carefully made incision, was not difficult. The left ovary, free and normally movable, was removed, and the left broad ligament attached, by means of the catgut ligatures binding the stump of the ovary, to the peritoneum on the left of the line of incision. The right ovary, on account of its firm adhesions in the pelvis, was so fixed that it could not be separated. This had evidently formed the chief obstruction to the attempt at repositing the uterus. Also upon raising the uterus a small fibroid tumor was found at the junction of the body with the cervix. After thus fixing the uterus to the abdominal wall, and carefully replacing the intestines, the incision was closed, and the patient made a smooth recovery. Result, from a half to one year after the operation the uterus had remained in the position given by the operation. The pressure difficulties on sitting had completely disappeared, while the pains which were complained of, in the left lower abdominal region, still continued. An examination revealed on the left side at the painful spot no disease whatever, while, on the right side, there were marked changes, and no pain at all was complained of.

Dr. Brennecke, of Magdeburg, has given me for publication these cases, in which he performed hysterorrhaphy successfully.

CASE XIII.—In 1883 he removed a large ovarian tumor from the right side of a woman aged seventy-two, suffering at the same time from complete prolapsus uteri, occasioned by the large cyst which extended deep into the pelvis. *The stump of the right horn of the uterus was stitched into the abdominal wound for the purpose of curing the prolapsus.* During her recovery the patient was without any other disturbance than a suppuration at the lower angle of the incision. This continued to discharge for one year, after which the case remained permanently and perfectly well. The sutures used were silk prepared in iodoform.

CASE XIV. was a patient about thirty-six years of age, operated upon in the winter of 1885-86. She had a small dermoid cyst the size of a child's head in the left ovary, and suffered at the same time from prolapsus. The removal was very difficult. *Both uterine cornua were sutured to the peritoneum of the abdominal wall, at the sides of the lower part of the incision; she had some difficulty in urinating for a*

short time. After a few weeks the uterus fell again, and after a few months was in as bad a condition as ever. The stump was attached directly to the abdominal wall by two sutures on one side; and on the other side two sutures encircled the round ligament. The abdominal wall was entered about a fifth of an inch in depth.

These cases Dr. Brennecke detailed to me in conversation from memory.

The two following unpublished cases of hysterorrhaphy, performed upon the retroflexed uterus, were given me by Prof. Werth, of Kiel.

CASE XV.—Patient, aged forty-one, had had five children. She suffered from retroflexed uterus and constant hemorrhages, and had had marked neurasthenia for eighteen months after a probable abortion. Menstruation was regular but profuse. For ten years past she had suffered from a descensus, for which she wore a ring pessary; this she had changed, two years previously, to a bandage with a uterine stem pessary. The retroversion was extreme, the cervix lying close behind the symphysis, the os uteri being turned completely upward, the vaginal walls were relaxed, but not prolapsed. The patient was in a wretched condition, anæmic and bleeding, and could not wait long for relief by pessaries. Operation was undertaken with the intention of removing the ovaries to check hemorrhage. *The uterus was raised and attached by the stumps of the ligaments to the abdominal wall*, just above the bladder on both sides by means of several stitches, taking especial care to sew it flat against the wall to keep out knuckles of intestine. The sutures were of silk, interrupted and dropped. After the operation, which was upon February 14, 1887, the patient suffered from no difficulty excepting a little flatulence.

Feb. 17. Passed water herself; very slight dysuria.

21st. Retention of urine.

22d. Pain in the bladder and burning in the urethra. Clear urine drawn, urethra found strongly contracted.

27th. For a few days involuntary loss of a few drops of urine.

On March 2d, examination made, and uterus found *anteflexed* to the right and the fundus close behind the symphysis, not sensitive to pressure as before. There was nothing abnormal in the surrounding parts. After rising, slight temporary difficulty with her urine. In May a report was brought that she was "doing very well."

CASE XVI. was a woman who had borne a child fifteen years before. On February 10, 1884, Prof. Werth removed a dermoid cyst of the right ovary. The uterine body was somewhat enlarged, and adherent to the pelvis in a state of sharp-angled retroflexion. Adhesions which attached the uterus to the posterior walls of Douglas's pouch were separated, and *the uterus brought into anteposition and attached to the peritoneum of the bladder by silk sutures*—probably two. The first night after the operation the patient suffered from flatulence, but no urinary difficulty, passing water herself.

On the 15th she complained of cutting pains in the right hypogastric region and over the symphysis.

On the 3d of March examination revealed the uterus anteverted, and the fundus flattened close under the scar in the abdomen. The cervix was found far back in the pelvis. The note of March 27th states that her condition is good.

In addition to the two cases operated upon by Lawson Tait, and detailed in my first paper upon this subject, I add another quoted from Dr. Senn (*Four Months Among the Surgeons of Europe*, p. 51). After removal of both ovaries and tubes to cure the prolapsus from which the patient was suffering, "*the uterus was stitched to the inner surface of the abdominal wound.*" I am not able to make any statement as to the exact procedure or the result in this case.

In the *Pittsburg Med. Review*, vol. i., No. II., p. 280, Dr. J. R. Weist tabulates a case (No. 190) in which he attached the stump of an ovarian tumor to the abdominal wound to cure a coexisting procidentia.

Fig. 1 shows the condition of a case recently operated upon by the writer, of which fuller details will be published later. The very large fundus lies retroflexed at an acute angle on the cervix, to which it is bound by numerous adhesions. The left ovary, much enlarged, lies below this, and to this it is also attached by adhesions.

FIG. 1.

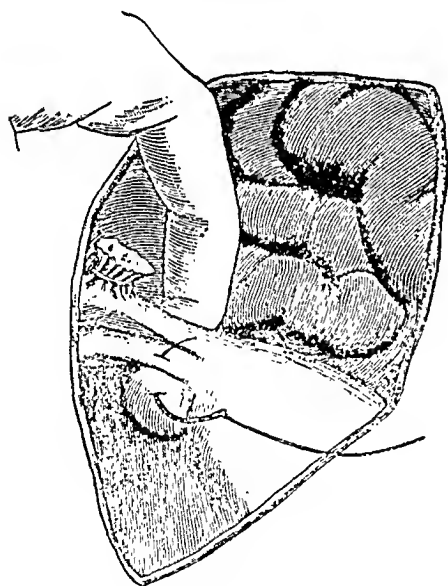


FIG. 2.

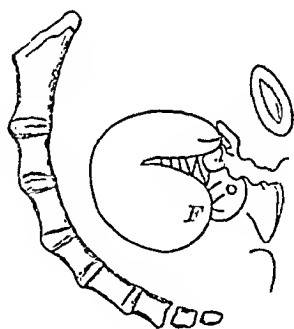
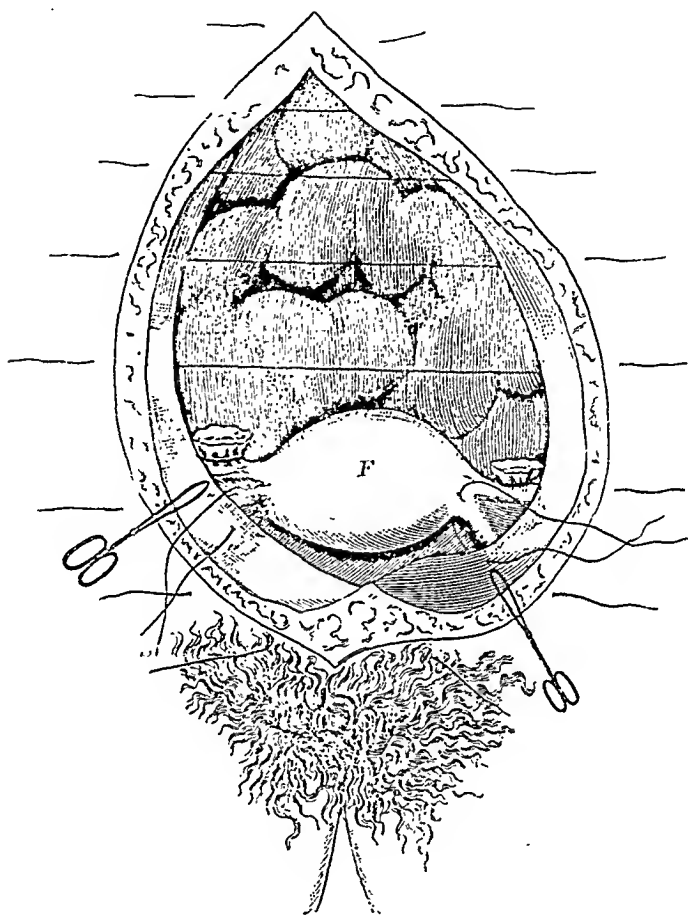


Fig. 2 shows the method of bringing the round ligament on the right side into view for the passage of the suspensory suture. The adhesions have been separated, the right and left ovaries and tubes tied off, and the fundus (*F*) raised.

In Fig. 3 the fundus (*F*) is seen as it lies in position preparatory to the tying up the two suspensory sutures (*SS*). The artery forceps are seen lying on either side everting the peritoneum, through which each suture can be thus seen to pass. These sutures are next tied tightly and cut short and let go. The row of sutures above are then drawn up and the whole wound thus closed. It will be observed that the uterus is thus

left close above the symphysis, and this was accomplished in this case without any effort at traction.

FIG. 3.



The name "hysterorrhaphy" which I adopted at the time of preparing the first paper in the Spring of 1886, is compounded of *ὑστέρα*, uterus, and *ραφή*, a suturing, and signifies either simple plastic suture of the uterus, "rhaphe" being used as in *perineorrhaphy*, or else suturing of the uterus to something, when it is used as in *nephorrhaphy*, fixation by suture of the floating kidney. In this latter sense I have used it. Plastic suture of the uterus alone is an operation not yet devised; when the uterus has been sutured, this has formed but a step in the course of another operation, and is not properly entitled to receive a distinctive name. "Hysterorrhaphy" might be claimed as better adapted to describe the operation upon the uterus closing the rupture occurring intra-partum, but the preliminary steps of opening the abdomen, and removing the fœtus, secundines, and blood, are far more serious than the simple suture of the tear, and the title should, therefore, be longer, and more completely descriptive. I prefer this term to gastro-hystero-

synaphy, on account of the claims of euphemism, and I prefer it to longer descriptive Latin names, as more in accordance with our present customs of nomenclature.

Hysterorrhaphy is indicated,

First, in cases of the adherent retroflexed uterus, in which the patient's sufferings arise from the malposition, cases which cannot otherwise be relieved, and in which there is a fair prospect of relief by elevating and securing the permanent anteposition of the uterus.

Second, it should be adopted in all cases of simple retroflexion where treatment through the vagina fails to relieve, and there is a reasonable hope that with the cure of the retroflexion the patient's sufferings will disappear.

Third, the propriety of proposition second being granted, it is, *à fortiori*, urgent, to insure the permanent replacement of a malposed uterus, coincidently with any other abdominal operation.

Fourth, in cases of prolapsus which cannot be cured by operation or treatment per vaginam, under the usual restrictions as to age, health, etc., hysterorrhaphy may be resorted to.

Judged by its present record, its no per cent. mortality, hysterorrhaphy is less dangerous, and more uniformly successful than the operation of shortening the round ligaments pulled out through the inguinal canal. In cases of adherent retroflexed uterus, there can be no rivalry between the methods, unless the operator will be willing to complicate his procedure, by making an abdominal incision, and after freeing the adhesions, making two additional lateral incisions to shorten the ligaments. In prolapsus the lengthening of the round ligaments is clearly secondary to the falling of the uterus, and a result of the traction exerted by the weight of the body. The uterus, therefore, does not fall in consequence of the lengthening of the round ligaments, as must be claimed if we would support the assertion that the operation is rational because it restores the natural condition of the parts. The round ligaments are so attenuated in many of these cases that they are found with the utmost difficulty, or not at all; and even if at one time they did exert a strong influence in supporting the uterus, they are in their present condition incapable of doing more than feebly assisting in this function. I have further, already pointed out the increasing mechanical disadvantage under which the round ligaments labor as the uterus is lifted higher up and nearer to the plane of the canals in which traction is made; after it has reached a certain point, still below this level, the utmost efforts at traction not succeeding in producing any greater elevation. No operative procedure for prolapsus has yet been devised which will restore the parts to their *primitive integrity*, and all attempts are but more or less efficient *substitutes* for the natural supports. In some cases of prolapsus where the tissues still retain sufficient regenerative power, treatment from below, narrowing the vaginal

outlet, holding the cervix back toward the sacrum, often conjoined with amputation of an enlarged or elongated cervix, will succeed in permanently curing the patient: but where these methods have not succeeded, hysterorrhaphy, being a procedure mechanically more efficient, and less dangerous than shortening of the round ligaments, will find its field and cure the prolapsus.

In some cases of simple retroflexion accompanied by disease of the ovaries and tubes, the displacement will be relieved by taking up as much of the slack in the broad ligaments as possible, when tying off the tubes and ovaries. It is necessary in such a case to apply the ligature very tightly and with extreme care, on account of the danger of hemorrhage from retraction of the tissues in the stump, to which the additional tension makes it liable. This method cannot often be relied upon, as the retroflexion readily recurs, for it is evident that where the uterus is only fixed by an axis passing through its transverse plane, visceral pressure on the fundus, acting with the free mobility in the sagittal plane, will readily rotate it backward, the cervix turning in the opposite direction as the fundus rolls over, without, necessarily, in the least affecting the tension on the lateral ligaments. This mechanism of the reproduction of a retroflexion I have actually observed. It becomes then evident, that as the rotation of the uterus in retroflexion is always in the sagittal plane, a slight acting force in this plane will effect more than a much greater force working in the coronal plane, that is, its transverse axis. *Fixation in the sagittal plane is attained by hysterorrhaphy.*

The normal condition of the body of the uterus is one of mobile ante-flexion, resting on the upper and posterior surface of the bladder, rising and falling with the alternate emptying and distention of that organ. This position was given in Prof. Werth's second case, cited above, and from this successful case I formulate a rule for the performance of hysterorrhaphy where the fundus uteri is not large and heavy. A single silkworm gut suture should be passed through or around the round ligaments at the uterine insertion on either side, and through the peritoneal coat of the bladder at the point on which the uterus naturally rests, and tied. If care is taken not to grasp the bladder too much from the sides, there need be no fear of tormina as the bladder fills. This simple suture is not any more likely to prove a source of irritation to the bladder than sutures so often passed after its rupture. The relation of the uterine and vesical surfaces thus effected is intimate, exactly imitating the natural position of the uterus, and is the ideal of the operation of hysterorrhaphy.

Another of the great factors in the reproduction of retro-displacement is relaxation of the utero-sacral ligaments, allowing the lower part of the uterus to drop down toward the vaginal outlet, and thus, without any necessary displacement of the fundus, completely changing the direction

of the uterine axis from ante- to retro-direction. This disadvantage must be met in any operative procedure by additional measures applied per vaginam tending to keep the cervix well back in the pelvis.

This might also be attained by an intraperitoneal suture, shortening the utero-sacral ligaments. I do not believe that these ligaments can be satisfactorily shortened from the vagina as suggested by Säger, but rather by a plan which I have proposed, of passing a suture on either side of the rectum down in Douglas's pouch, from within outward, bridging over the laxity, entering the needle deep into the cervix at the point of their attachment on either side, and thus by two sutures, tied tight, the slack is taken up and the cervix held well back in place.

While the above *natural* method of attaching the uterus to the bladder will suffice for the simple cases, the method as previously proposed will be necessary in cases of prolapsus and in retroflexion with an enlarged fundus, or retroflexion with descensus.

In cases of adhesions, after releasing all attachments which bind the uterus down, and checking hæmorrhage, the intestines should be kept out of the way by means of one or more large flat sponges, or, better still, a properly disinfected piece of cheese-cloth, when the uterus is to be brought up, and two or three sutures of silkworm or silver wire passed one below the other through each round ligament near its uterine origin, and deeply into the tissues of the abdominal wall just above the symphysis pubis on either side of the incision, and at a distance from it about equal to half the breadth of the uterus. These sutures are left long and held in the grasp with forceps until all are passed, when they are to be tied, as recommended by Säger, who has also shown the necessity of employing a number of sutures. When the sutures are thus tied the uterus will be held snugly against the abdominal wall. That the function of the bladder is not thus seriously interfered with, is shown by the histories given, the disturbance being but temporary at the utmost. This objection I had considered previous to operating, and answered by clinical observations, when, upon making bimanual examinations, I have frequently found the bladder lying entirely to one or other side of the median line.

It is not claimed that hysterorrhaphy substitutes the natural for an unnatural position of the uterus, but that it gives the best possible equivalent, and one which, in so far as results are concerned, is often as satisfactory as the natural position. By this means prolapsus is cured, retroflexion is straightened out, and the vessels which have long been compressed and twisted are brought up to a health level, and the uterus is drained of its accumulated debris. That these remarkable results are brought about in a surprisingly short space of time, is shown by the rapid diminution in the size of the uterus in Säger's cases. Although

the new position thus assumed does not possess the mechanical advantages of the healthy organ when all ordinary exertions tend to increase rather than diminish the power of resisting prolapsus or backward displacement, it yet possesses an advantage over the organ in any other than the normal position. In the new position thus given the uterus, pressure from within cannot act upon its anterior surface, and forces acting vertically downward toward the pelvic outlet are reflected off from the inclined plane of the posterior surfaces, affecting but a small area on top of the fundus; it is, therefore, but little influenced by many forces ordinarily concerned in reproducing displacement. The only disadvantage to which it is now subject, is its own weight, increased by its vis inertiae and succussion. This is controlled by an adequate number of sutures, to be increased according to the weight to be suspended.

Thus far no trouble has been experienced from, nor has any pain been occasioned by the traction necessary to bring the uterus into this position and retain it there. Dr. C. C. Lee, of New York, one of the first to appreciate a possible future for this operation, has, in conversation with the author and by letter, insisted in particular that its widest scope is in cases of retroflexion with adhesion.

Dr. Polk, of New York, proposed and tried, in two cases of retroflexion, after opening the abdomen and rectifying the flexion, to support the uterus by means of a drainage tube passing from the lower angle of the incision into Douglas's pouch. A similar method was also practised by Dr. Klotz, as announced in the *Proceedings of the Gynecological Society*, in Dresden, of October 6, 1887. In this case, as reported by Dr. Klotz, after a complete and careful release of all adhesions of the ovaries and the tubes, one tube of an ovarian pedicle was stitched into the abdominal incision, and the uterus further supported by a drainage tube one and a half centimetres in diameter, reaching down into Douglas's pouch, where it was allowed to remain for from three to four weeks. The report is incomplete, wanting a more exact description of the methods employed. I cannot anticipate, nor does Dr. Polk himself seem to look for, any wide field of utility for this apparently simple method of support (*American Journal of Obstetrics*, October, 1887, page 1046). The ease with which the uterus, propelled by intestinal movements, assisted by the dorsal position of the patient, can slip around such a prop is but too evident; and in case of success, if the appendages had been removed, I should rather attribute the success to coincident premeditated shortening of the broad ligaments in removing the ovaries and tubes. Another serious disadvantage is the length of time necessary to retain the prop *in situ*, to insure a permanent result. If this method is to receive further trial, I would recommend, instead of the drainage tube, the use of one or two of the glass stirring rods found at chemists,

which could be passed between stitches, and not in any way interfering with the proper closure, and careful suturing of the abdominal wound. Under the usual antiseptic precaution these could be left in place a long time.

In conclusion, hysterorrhaphy is only to be practised in a limited number of carefully selected cases, and, in the hands of the skilful abdominal surgeon, it will be found to be a safe procedure. It is not to be recommended in all cases of obstinate retroflexion, whether with or without adhesions. I have at present five patients under treatment, between thirty-five and forty-five years of age, who have suffered from retroflexion since girlhood. They are sterile, and for that reason come to me for treatment; the vagina is long, the uterus small, generally adherent, retroflexed; they have general pelvic tenderness, of which they complain almost constantly, subject to exacerbation at the menstrual period. In these cases, whether congenital or acquired, the condition has become a habit, and I do not believe that the simple correction of the flexion will either relieve them of their pains or cure the sterility, and I have not in any such case advised the operation. I would also hesitate very much before advising its performance in a very obese patient.

If, in time, this method shall prove acceptable, reflecting credit upon its originators, much is certainly due to Koeberlé, who, in a single case, opened the abdomen, corrected the flexion, and sutured the stumps of the appendages into the abdominal wound. Credit is due to Olshausen and myself in independently originating and recognizing the importance of the procedure as one widely applicable; and to Sänger, who has been the first to take hold of the subject and, by careful analysis, and many practical observations, place it upon the footing where it will surely command the attention of gynecologists throughout the world.

February 15, 1888.

PROLAPSE OF THE INVERTED LOWER PORTION OF THE RIGHT URETER THROUGH THE URETHRA IN A CHILD TWO WEEKS OLD.

BY AUGUSTUS CAILLÉ, M.D.,

VISITING PHYSICIAN TO THE GERMAN HOSPITAL AND TO THE GERMAN DISPENSARY
(DEPARTMENT OF CHILDREN'S DISEASES), NEW YORK.

THE following interesting case came under my observation in the surgical department of the German Dispensary of the City of New York, in the service of Dr. Ernst Schottky, who courteously invited my par-

icipation in the observation and treatment of the same, and ultimately submitted its publication to me.

Baby S., female, two weeks old, nursed by mother. Family history good. The mother states that her child had had diarrhœa since birth, on an average eight to ten evacuations daily, sometimes accompanied by tenesmus, but without a trace of blood. The passage of urine was not accompanied by any symptoms to attract attention. The child was often restless, and slept but little; the home remedies, to check the diarrhœa, administered by the mother proved ineffectual.

On November 6, 1886, the infant appeared extremely restless and refused to take the breast. Toward evening a severe prolonged fit of crying left it exhausted and pale in its mother's lap.

The next inspection of the child's genitals for diapering revealed the presence of a tumor or swelling protruding from the vulva, and in this condition it was presented at the Dispensary the following day.

A preliminary examination revealed a soft, bluish-red tumor, pyriform in shape, the size of a walnut, protruding from the vulva.

Palpation of the protruding part gave the impression of a smoothly lined sac. Careful digital examination per rectum elicited nothing abnormal. Traction on the swelling in an upward direction showed a very distinct *introitus vaginæ*. The hymen was absent and the vaginal canal large enough to admit of the introduction of the oiled index finger and palpation of the *portio vaginalis uteri*.

The tumor was located midway between the symphysis pubis and the *introitus vaginæ*, and could be pressed well into the vagina, thus disappearing from sight, but remaining perfectly distinct to the touch and irreducible by pressure, the possibility of a diagnosis of prolapse of the anterior vaginal wall being thereby excluded. The urethral orifice was not in view, while its site was occupied by an annular tumefaction from the centre of which the pedicle of the tumor seemed to take its origin.

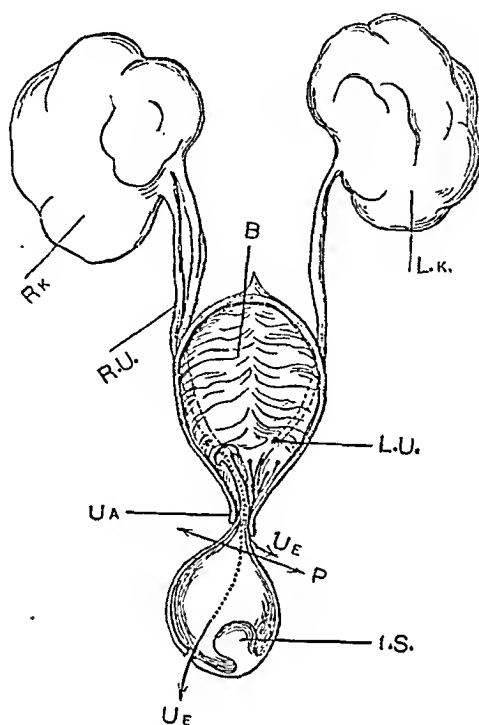
This condition, in view of several published cases of prolapse or inversion of the bladder, naturally led to the assumption that the case in question was of such a nature, viz., prolapse of the whole or a part of the bladder through the urethra. A close inspection of the tumor was made and a lateral opening in its right side was found, which admitted the passage of a probe. (See illustration.)

Immediate reduction of the prolapse was decided upon. After thoroughly disinfecting the genital region, the child was chloroformed and we succeeded without much difficulty in reducing the prolapsed part by means of a curved silver catheter, whereupon the enormously dilated urethral orifice came into view. The bladder was now washed with a disinfecting solution of potassium permanganate and the vagina packed with iodoform gauze to prevent a possible relapse, and the child was sent home with a warning to the mother to guard against overfeeding.

Nov. 8. The mother reports extreme restlessness of the child with no improvement in the character and frequency of stools, they being thin, yellow, and containing considerable mucus. The child also vomited after each nursing, which was probably due to the anæsthetic (chloroform).

The urine was reported to be clear and was passed in jets spouting in an anterior and posterior direction, the function of the sphincter vesicæ

being evidently unimpaired. Facies indicative of slight collapse. Abdomen gave evidence of tympanites and tenderness on pressure. Temperature in rectum 102° F. (peritonitis).



Showing the anatomical relation of the parts.

R. K. Right kidney. L. K. Left kidney. R. U. Right ureter (double). L. U. Left ureter. B. Bladder. U.A. Urethra. P. Prolapsed right ureter. I. S. Inflammatory swelling (tumor). U.E. Urine.

Inspection revealed the prolapsed part again protruding in its original form, its surface being darker and spotted with a grayish exudation. Severe crying and straining on the part of the little patient necessitated repetition of the narcosis (chloroform), causing considerable delay, and after removal of the vaginal tampon and application of iodoform to the prolapsed part, a second reduction was successfully managed. The vagina was again firmly packed to the introitus, and the parts anointed with iodoform vaseline. A cold compress was ordered to the abdomen. As nourishment barley-water, whiskey in water, occasionally the breast. Medication: bismuth and opium.

9th. During the past twenty-four hours the child had rested quietly. Tympanites was less marked. Temperature $101\frac{1}{2}^{\circ}$ F. Expression and general appearance better. No recurrence of prolapse. Urine clear and passed at regular intervals. One thin evacuation. Vaseline and iodoform reapplied, and the parent advised to continue the treatment of the day previous.

10th. The infant had two normal evacuations, took the breast readily, but passed cloudy and bad smelling urine, and appeared restless after each application of the cold compress. Temperature $101\frac{1}{2}^{\circ}$ F. Tym-

panites moderate, expression again denoting collapse. The prolapse was again visible and appeared discolored. Chloroform was again administered, the stage of relaxation setting in more rapidly than before, narcosis was deeper and lasted longer. The tampon was removed, and the vagina and bladder irrigated with potassium permanganate solution, fresh tampons were introduced, and continuance of previous treatment advised. Instead of the cold compress, warm, moist bandages were ordered over the abdomen.

11th. Diarrhœa had again set in, amounting to seven greenish evacuations, with much tenesmus and restlessness. Urine no longer offensive, and general condition satisfactory. No prolapse visible. During examination patient had a thin, yellow passage. The bladder was irrigated as usual, the fluid returning clear. Rigorous dietary restrictions, which had been left unobserved by the mother, were again insisted upon, and frequent doses of bismuth and opium advised, also local treatment by means of enemata of lukewarm water.

12th. Diarrhœa same as on previous day. The orders as to strict diet had been again neglected. Prolapse not visible. Removal of tampons, irrigation of vagina and bladder, and reintroduction of fresh tampons were possible without narcosis. The mother's statement that the urine came clear and free from smell was corroborated by the spontaneous passage of urine during the above manipulations, but previous to this the urine washed out by the irrigation liquid appeared dirty and had an ammoniacal odor. Strict diet, nitrate of silver, opium, gum arabic, and whiskey were ordered for the next twenty-four hours.

13th. Inspection revealing a recurrence of prolapse, the parts were now subjected to another careful examination, as a result of which we were enabled to come to the positive conclusion that it was not simply a vesical prolapse *in toto* we had to deal with, but presumably a prolapse of a part or diverticulum of the bladder, for the following reasons:

(1) Careful manipulation resulted in the successful passage of a catheter between the tumor and the annular tumefaction surrounding its base (representing the urethral orifice) into the bladder beyond.

(2) It was also observed that straining efforts on the part of the child forced urine through the same passage from within outward.

(3) Rotation and forward movement of the probe around the neck or pedicle of the tumor further enabled us to locate a right lateral insertion into the base of the bladder.

14th. The surface of the sac showed a slough in the immediate neighborhood of the opening before recognized, through which a probe when introduced descended to the same depth as when passed into the bladder proper. Furthermore, the opening revealed the existence of a small, hard tumor, about the size of a pea, within the cavity of the prolapsed sac. The nature of this tumor we were unable to determine. Believing the prolapsed part to be a diverticulum, and having found it to be irreducible, we agreed to remove it.

Bladder, diverticulum, and vagina were again irrigated with potassium permanganate solution. In the meantime tannic acid had been administered internally to check the diarrhœa, and as a result the child now had one or two normal evacuations daily. The temperature alternated, being at times normal, subnormal, or elevated, but never exceeding 102° F. The child urinated well, did not vomit, nursed fairly, but slept insufficiently, and had become much emaciated.

Two days previous to the operation the opening in the prolapsed sac was noticed to afford exit to a purulent, offensive discharge. A flow of urine was never seen to take place from the prolapsed portion.

The sac was cut away on the twelfth day after presentation at the dispensary, under chloroform, which the child bore very badly. The diverticulum was put upon the stretch, thoroughly ligated, and as much as possible removed by scissors. The child died in twelve hours.

POST-MORTEM APPEARANCES.—*Abdominal cavity*: Stomach and intestines much inflated, but empty and not congested. Their removal exposed to view a bluish, fluctuating mass about the size of a hen's egg, representing the right kidney, also a mass similar in appearance but smaller, representing the left kidney. Both ureters dilated. The right ureter was double, with double insertion into the hilus, both branches converging in their downward course, and terminating by a single opening in the bladder.

The bladder was found empty, no hemorrhage having taken place. The point of insertion of the amputated sac was plainly visible and corresponded to the site of the opening of the right ureter in the normal state. It appears, from the description, that the probe introduced into the supposed diverticulum must have entered the dilated right ureter.

The right kidney had undergone cystic degeneration, and contained sero-purulent fluid.

The prolapsed sac, which had been removed by operation, was continuous with the mucous lining of the right ureter, and was, in fact, a prolapse of the inverted lower third of the right ureter into the bladder and through the urethra.

The whole urino-genital apparatus was removed for preservation and subsequent microscopic examination.

At the time of the autopsy the microscopic appearance of the kidneys suggested sarcomatous degeneration. The lobulated appearance was noticeable in both kidneys, but more so in the left one. On section of the right kidney several cavities filled with pus were detected, the largest being the size of a cherry, the smallest the size of a pea.

A section of the left kidney showed no abscesses, but marked thickening of the cortical substance with pale red nodules interspersed, which, to the touch, proved to be harder than the surrounding portions. Pelvis of kidney wider than normal, otherwise unchanged.

Sections for microscopic examination were made from the prolapsed mucosa of the right ureter and from the cortical and pyramidal parts of both kidneys.

Right kidney: Inflammatory changes were most marked in the neighborhood of the abscesses, gradually fading toward portions little attacked. The epithelia of well-preserved lobules exhibited coarse granulation. In the intensely invaded portion only the tufts could be made out. When tufts and capsules were visible, the space between them was partly or completely filled with inflammatory corpuscles. A breaking down of capillary loops and interstitial tissue was well marked in numerous places. In some places remnants of both convoluted and straight tubules were recognizable by their epithelia, which were comparatively little altered. In many places, however, the epithelia appeared so broken that the whole tissue looked uniformly crowded with inflammatory corpuscles, and but faint traces of former tubular epithelia could be made out. In the pyramidal portion of the kidney only slight inflammatory changes were present.

Left kidney: In the left kidney the nodules above mentioned were the main objects of microscopical research, owing to the suspicion upon examination with the naked eye that possibly these nodules were of a sarcomatous nature. A careful analysis of their minute structure disproved this assumption. In fact, the nodules were of the same nature as the diffused infiltration of the right kidney, viz., interstitial nephritis tending toward suppuration, which had not yet taken place. The latter changes were most conspicuous in the epithelia of the narrow and loop-tubules, whose calibre appeared to be lost to a great extent. The interstitial connective tissue was infiltrated to a varying extent, and the capillary bloodvessels therein appeared rather compressed or destroyed. The general appearance was that of infiltration immediately preceding suppuration. The prolapsed part of the ureter showed at the site of the sloughed small tumor nothing but marked inflammatory infiltration of the mucosa and submucous connective tissue.

In summing up, we may positively state that the pathological condition in both kidneys was strictly inflammatory.

REMARKS.—From a careful review of the foregoing account of this unique case it would appear that, owing to the formation of a warty or *papillomatous* small growth in the right ureter near its vesical insertion, a partial or complete occlusion of the ureter took place, in consequence of which the small tumor was pressed into the bladder, and finally through the urethra, carrying with it or dragging along the inverted lower third of the ureter, which presented in the form of the sac. The sac was supposed to be a diverticulum of the bladder, owing to the fact that at no time was it possible to insert a probe into the opening in this sac to a greater depth than when inserted at the side of the sac into the bladder proper, and at no time was a discharge of urine noticed to take place from this sac.

The inflammatory changes in the right, and those also in the left kidney, were probably due to infection taking place through the exposed and sloughed membrane. An explanation for the persistent diarrhoea is of minor importance, and is therefore not attempted.

As far as our reading goes, a similar case has never been reported.

ON THE STERILIZATION OF MILK AND FOODS FOR INFANTS.¹

BY J. AMORY JEFFRIES, M.D.,
OF BOSTON.

DURING last summer's work as District Physician of the Boston Dispensary, my attention was called, by the severity and prevalence of the trouble, to the summer diarrhoeas of infants. The disease was quite

¹ The work for this paper was done in the bacteriological laboratory of the Harvard Medical School, for the freedom of which I am much indebted.

prevalent, and in my cases severe, as the milder ones were all treated as out-patients. In most cases it had existed for about a week, and the infant was already collapsed by the time of my first visit. The skin would be found cold, the limbs were blue, the fontanelles sunken, eyes the same, the child either indifferent or curled up and whining. The pulse would be weak, small, and rapid, and the temperature, in the rectum, over 100° F., often higher; convulsions were rare. The bowels were tender and in most of the cases diarrhœa existed; a few, however, were constipated. The tendency of all discharges was to a green color and much mucus. In short, the clinical picture was that with which all physicians are familiar.

Treatment was begun with the ordinary drugs and salicylate of soda, which was then being so much extolled as a germicide, and care of the bottle. Later the treatment was changed to creasote, if vomiting existed, and care of the milk supply. The change was made to bring the treatment more into accord with the generally accepted belief that bacteria are at the bottom of the trouble. Whether special organisms are accepted as probable or not, the belief that changes wrought in the food, inside or outside the body, are the cause of the trouble is held by most.

Long before bacteria were thought of as the cause of the disease the usual routine treatment had a decidedly germicidal tendency. Gray powder probably acts as a mild germicide in the stomach, and lower down in the canal helps to sweep them out; while the care of the bottle is nothing but an effort to avoid bacteria and their effects. Lastly, a host of patent foods, advertised as germ free, have come into the market.

It is a curious fact that while all older people are chiefly fed on sterilized food—that is, cooked food—infants are fed on food peculiarly adapted, by its composition and fluid state, to offer a home to bacteria.

Investigation of the milk supply soon showed that this was greatly at fault; though "fresh each day," it was, as a rule, found to be decidedly acid, often curdling if heated, by the time it was fed to the infant. This the infant, unable to talk and knowing nothing better, was obliged to take or go empty. So, remembering the custom of housewives to scald the milk, directions were given that all milk used for the infants should at once, on receipt, be steamed in a skillet set into the top of the tea-kettle. After this it was kept covered and on ice if possible. The bottles were rarely clean, but were, as a rule, emptied after each feeding. The result was that instead of staying at the point of death, the little patients began to pick up and were soon well, the stools first becoming light, then yellow. I have since undertaken to devise some way by which milk can be practically sterilized—to lay down a rule applicable in any house, by any ordinary nurse.

The ordinary milk supply of a large city is a day or more old, has a slightly acid reaction, and contains many growing bacteria. If kept for

a day it is decidedly acid in reaction, has a sour taste, is apt to curdle if heated, and contains a very large number of bacteria, the cause of the changes. Fresh milk sterilized, or collected sterile and protected from organisms, undergoes no changes even after the lapse of indefinite periods except the separation of the fats. If bacteria are present, a great variety of changes may occur according to the species—for instance, the milk sugar may be turned to acids, the fats broken up, or tyrotoxicon formed. As milk affords such a fine medium for growth, all efforts to rid it of bacteria must be governed by the use of poisons—germicides—or some physical condition inimical to their life. The first method is not admissible in foods, while the other offers little chance of success except by heat. Cold simply retards their growth, does not kill. As boiling produces marked changes, this also is undesirable, so our means are narrowed down to the ordinary one of steaming. Fortunately this produces but slight changes in the milk compared to boiling, and, as I have found, is efficient.

Before reporting the experiments a few preliminary statements are necessary. The milk used came from a private source, eight miles from Boston, was either eight or twenty-two hours old, was kept in an ice-chest, and of very good quality. The only precaution, in the way of sterilization, taken was to heat the test-tubes or flasks in an oven before using them. The flasks were also plugged with cotton-wool rather than a stopper, which is liable to be blown out.

The agar-agar tubes, mentioned in the experiments, are the regular ones used by bacteriologists—that is, test-tubes about one-fourth full of a meat-peptone solution, solidified by the addition of agar-agar. These were allowed to cool on an inclined plane to obtain a large surface. The loop is simply a small loop in the end of the platinum wire, used to convey the substance to be tested for bacteria to the surface of the agar-agar. Esmarchs are made by adding the substance to be tested to some meat-peptone gelatine solution, dissolved by warmth, and then rapidly rotating the test-tube containing it on a horizontal plane of ice. By this means the gelatine solidifies in a thin, even coat on the entire inner surface of the tube. Later the bacteria multiply and form colonies easily counted.

In making inoculations from the milk after steaming all precautions against contamination were taken; the fluid being first thoroughly mixed, so as to obtain due proportions of all the constituents in the part used for inoculation. After steaming the flasks were left at the temperature of the room, as ice, by virtue of its cold, would tend to diminish the severity of my tests.

All the experiments are reported, not only those which were favorable.

EXPERIMENT I.—Thirteen test-tubes of fresh morning's milk were placed in the steamer and heated until steamed for fifteen minutes. On the next

day six of the above were steamed a second time the same way. Before the first steaming an agar-agar culture was made from the milk; in three days the growth was marked.

10th day. Agar-agar cultures made from the test-tubes of milk, one loop in each case.

13th. All the cultures sterile as yet.

26th. One-half of the cultures of the milk steamed but once, show growth; rest sterile.

EXPERIMENT II.—Agar-agar cultures made from the middle of a freshly opened can of Anglo-Swiss condensed milk. In ten days these developed three colonies. At the same time a 10 per cent. solution of the condensed milk was made with hot water, and steamed as in Experiment I., in all eighteen tubes.

2d day. Nine tubes steamed a second time.

9th. One of the tubes steamed but once has coagulated, all the others have a cream on top, a milky fluid below, and a slight sediment at the bottom. From each tube an agar-agar culture with one loop was made.

24th. Two-thirds of those steamed but once have coagulated, and their cultures show growth; the rest, same as before, and cultures sterile.

EXPERIMENT III.—A mixture was made of Mellin's food as directed on the bottle, of 8.5 grammes of the food and 131 c. cm. of water and milk each. This was then placed in eighteen sterile test-tubes, divided into two lots (A) steamed once; (B) steamed twice, as in I.

10th day. Both A and B have a brownish cream, fluid, and sediment, but show no signs of coagulation. Agar-agar cultures made with one loop from each.

20th. All the cultures from A show a growth, while those from B are sterile.

EXPERIMENT IV.—A mixture was made of cream 50 c. cm., milk 25 c. cm., lime water 50 c. cm., and milk sugar solution¹ 75 c. cm; this was divided into two lots, thirteen test-tubes in all, and treated as in III.

10th day. Mixture turned brown at once upon steaming, and so remained; no other visible change. Agar-agar cultures, with one loop made from each.

20th. No change in test-tubes; cultures both A and B sterile.

As Dr. T. M. Rotch² reports no changes in the cream mixture after steaming, I made the following experiments to discover the source of the brown color in IV.

EXPERIMENT V.—A mixture of one part milk, two cream, and three milk sugar solution was placed in seven test-tubes and steamed for fifteen minutes.

2d day. No brown color, cream very thick.

8th. No visible change; reaction to litmus paper neutral. Agar-agar culture made from each tube.

23d. No changes in the tubes; cultures all sterile.

EXPERIMENT VI.—A mixture of equal parts of cream, milk, and lime water, placed in six test-tubes, and steamed for fifteen minutes.

2d day. No brown color; cream on top.

8th. Agar-agar cultures made.

23d. Tubes all fresh; cultures all sterile.

EXPERIMENT VII.—First boiled lime water and milk sugar solution separately, over a Bunsen burner, and found no change except that lime was left on the side of the test-tube. Next made a mixture of the two, in the proportion of two to three, and divided it up among ten test-tubes. Reaction strongly alkaline. The ten tubes were then put in the steamer. One was taken out in five minutes, another in ten, a third in fifteen, and the rest at the end of a half hour; all were found to be brown, or rather a yellow-brown, the first slightly less so than the rest. They were then tested with litmus paper, and found to show a marked diminution in alkalinity.

No further experiments were made, as the above seemed to show clearly that the brown color was due to the action of the lime on the

¹ Milk sugar 517 $\frac{3}{4}$, water Oj.

² The Archives of Pediatrics, 1887, vol. iv. p. 462.

milk sugar, like that produced by potassic hydrate, in which case brown products are formed. However this may be, the reaction always took place in my experiments, provided the milk sugar had not become decomposed, as it shortly does if fungi get into the solution.

Why my results should thus vary from Dr. Rotch's is not clear, unless it be that his mixtures had been mixed before he saw them. If examined before disturbing, the cream above is quite light, and the thin fluid below distinctly brown, after mixing the cream makes the whole quite opaque, and the color is almost concealed. It will be remembered Dr. Rotch did not report a test of the reaction after steaming.

In the following experiments the flasks were put in the hot steamer, instead of into the cold steamer and heated up. This was done in order to adopt as much as possible the principle of Pasteurisation; a rapid being more fatal than a gradual change of temperature of the same extent.

EXPERIMENT VIII.—Cream mixture of the same proportions as in IV. was put in eighteen test-tubes, and steamed for fifteen minutes. On the following day nine of them (B) were steamed again for fifteen minutes. All of the tubes, both A and B, became brown during the steaming, and, as was later found, lost much of their alkalinity.

5th day. Agar-agar cultures made from three of A and three of B; milk tested with litmus paper; B found neutral, A faintly alkaline.

9th. One of the agar-agar cultures from A shows a growth.

15th. Another from A shows growth, all B are sterile.

EXPERIMENT IX.—A mixture of Anglo-Swiss condensed milk one part, hot water nine parts, was put in thirteen test-tubes and placed in the hot steamer for fifteen minutes; on the next day seven of these (B) were again steamed for fifteen minutes.

4th day. Cream on top, milky fluid below and slight sediment at the bottom, but no visible signs of decomposition. Three agar-agar cultures made from each A and B.

20th. All the agar-agar tubes sterile.

EXPERIMENT X.—To a mixture of Anglo-Swiss condensed milk like the last was added an old culture of a bacillus producing putrefaction. All twenty tubes were then placed in the hot steamer. Four were removed in five minutes (A), four in ten (B), four in fifteen (C), and the remaining eight in twenty (D).

3d day. Agar-agar tubes inoculated from two tubes of each lot of milk, making eight in all.

8th. One of A is negative, the other shows a good growth; B, C, and D, sterile.

16th. The other A and one of the C tubes have taken, rest sterile. Ultimately all the milk tubes but one steamed for twenty minutes decomposed.

EXPERIMENT XI.—Fifteen test-tubes were filled with milk and put in the hot steamer, they were removed in lots of five at the end of five, ten, and fifteen minutes. At the same time three gelatine Esmarch tube cultures were made, each containing two drops of the fresh milk.

2d day. Agar-agar cultures made with one loop from each of the tubes of milk.

3d. The Esmarchs contain about 250 colonies each.

14th. All the agar-agar tubes are sterile, but the milk has coagulated in all but three tubes.

EXPERIMENT XII.—This experiment was the same as the last, except that the agar-agar tubes were inoculated from the milk four days after steaming instead of one day.

8th day. All five of those steamed for five minutes show growth, also one of those steamed for ten.

12th. Three more of those steamed for ten minutes show growth. All the milk tubes steamed for five or ten minutes have coagulated, also one of those steamed for fifteen minutes. No further changes occurred.

EXPERIMENT XIII.—Fifteen test-tubes were steamed as in the last two experiments and stood aside to be tested for their bacterial contents at the end of fourteen days. At the end of this time all of the tubes but one of those steamed for fifteen minutes had clotted, so no cultures were made.

EXPERIMENT XIV.—Three flasks each containing 100 c.cm. of milk were put in the hot steamer for fifteen minutes.

2d day. Agar-agar cultures were made from the flasks.

32d. Agar-agar tubes still sterile.

EXPERIMENT XV.—This experiment was the exact counterpart of Experiment XIV. and gave the same results.

EXPERIMENT XVI.—One flask containing 200 c.cm. of milk was put in the hot steamer for fifteen minutes.

2d day. Agar-agar tube inoculated with one loop from the flask.

30th. Agar-agar tube sterile.

EXPERIMENT XVII.—Four tubes each containing 100 c.cm. of milk were steamed for fifteen minutes.

7th day. Milk acid in reaction, but shows no visible change. Agar-agar tube inoculated from each flask by a loop.

12th. One of the agar-agar tubes shows a good growth.

20th. Another of the agar-agar tubes has taken.

30th. The other two agar-agar tubes are still sterile.

EXPERIMENT XVIII.—Three flasks each with 100 c.cm. of milk were steamed for fifteen minutes.

2d day. Three agar-agar tubes inoculated, with a loop, from the three flasks; milk also tested with litmus paper and found to be faintly acid.

15th. The three agar-agar tubes are sterile.

EXPERIMENT XIX.—A test-tube of the lot of milk used in the last was set aside for a day and then three agar-agar tubes inoculated, each with one loop.

4th day. The agar-agar tubes are simply swarming with bacteria.

EXPERIMENT XX.—Five agar-agar tubes were inoculated with one loop each from the lot of fresh milk used in Experiment XVIII.

5th day. All show good growth with isolated colonies on the edge.

If we stop to review the results of the above experiments it is at once seen that milk cannot often be sterilized by one steaming. Of the one hundred and twenty odd lots of milk steamed but once, all but four or five showed distinct signs of change within a month. Two which appear sterile are, however, still in my possession after twice that lapse of time. How it happened that these few are sterile will be explained later on. On the other hand, the majority of those steamed twice did not change at all; those which did change, it may be added, coagulated at about the same time as those steamed but once.

But if we look over the data of the agar-agar tubes inoculated by the loop, we see that such may be sterile even if made from milk which has stood for a long period. This is shown by Experiments I., II., III., and V., where the milk had stood from seven to ten days after being steamed before the culture was made. That the loop was sufficiently large to carry enough milk to contaminate the agar-agar is shown by XX. No more such experiments are reported, though many were made in the

course of other work, as all showed the loop to contain quite a number of bacteria.

Turning to the twenty agar-agar tubes inoculated from milk which had stood one day, we find that all failed to show any growth. It was evident, therefore, that steaming for fifteen minutes offered good prospects of success.

Before passing to my final experiments to elaborate this point, it must be noted that on several occasions the growth of bacteria on the agar-agar had not become distinctly visible until the tenth day.

The following experiments go in threes: a gelatine Esmarch culture was made with one drop of milk or mixture used, then the flasks, each containing 100 c.cm. of the substance, were steamed for fifteen minutes; and lastly, a part was set aside stoppered in the room. As soon as the flasks were steamed they were put beside the one not steamed. At the end of twenty-four hours Esmarchs were made from all, one drop being taken by a sterile pipette. By this means it was possible to count the number of bacteria in a drop of the substance, a large quantity, before steaming and a day after it had been steamed, and to gather an idea of what the number would have been if it had not been steamed.

EXPERIMENT XXI.—Four flasks were filled, each with 100 c. cm. of milk, and then steamed at once for fifteen minutes, after which they were stood away for a day. At the end of this time four Esmarchs were made from the four flasks, with one drop each.

3d day. No signs of growth in the Esmarchs.

11th. The Esmarchs show 0, 1, 3, and 10 colonies respectively, all of one kind.

EXPERIMENT XXII.—Two Esmarchs were made with one drop each from the fresh lot of milk used in the last.

7th day. Calculations made in the usual way by counting the colonies in a given area, and multiplying by the total area give 1644 and 1391 colonies.

EXPERIMENT XXIII.—Steamed three flasks, each with 100 c. cm. of milk for fifteen minutes.

2d day. Made Esmarchs with one drop from each of the three flasks.

9th. All sterile.

20th. All sterile.

EXPERIMENT XXIV.—A test-tube filled from the lot of milk used in the last was set aside till the following day, when two Esmarchs, with a drop each, were made at the same time as those of XXIII.

4th day. Esmarchs entirely dissolved by the minute colonies, thus showing the presence of innumerable bacteria in the milk.

EXPERIMENT XXV.—One gelatine test-tube was inoculated with one drop of the fresh milk, and should have been rolled out into an Esmarch but was forgotten.

4th day. Full of colonies, but it is impossible to count them in the mass of gelatine.

9th. Gelatine all dissolved for some time.

EXPERIMENT XXVI.—Mixture made of 7 grm. Mellin's food and 150 c. cm. of hot water, after the food was dissolved, 150 c. cm of milk were added, and the whole steamed. Two flasks were then filled with 100 c. cm each, and steamed for fifteen minutes.

2d day. Esmarchs, one drop made from each.

5th. Each Esmarch contains one colony.

19th. No change.

EXPERIMENT XXVII.—Two Esmarchs made, with one drop each, from the fresh lot of Mellin's food used in the last experiment.

3d day. One Esmarch shows 18, the other 20 colonies.

8th. They now show 30 and 34 colonies.

15th. No change in the numbers.

EXPERIMENT XXVIII.—Sample from the mixture used in Exp. XXVI. set aside until the next day, when an Esmarch with one drop was made.

3d day. Esmarchs contain so many minute colonies it is impossible to count them; the whole shortly dissolved.

EXPERIMENT XXIX.—A mixture was made of one part Anglo-Swiss condensed milk and ten parts-hot water. From this two flasks, 100 c. cm. each, were filled and steamed for fifteen minutes.

2d day. Esmarch, with one drop, made from each.

5th. No colonies visible.

12th. One Esmarch is sterile, the other has one colony.

16th. No new colonies.

EXPERIMENT XXX.—Two Esmarchs were made from the fresh mixture used in the last experiment, each with one drop.

5th day. The Esmarchs show 646 and 612 colonies, according to calculation; these shortly dissolved the gelatine.

EXPERIMENT XXXI.—A test-tube full of the condensed milk solution used in Experiment XXIX. was set aside for a day, when an Esmarch with one drop from it was made.

5th day. The fourth day of the Esmarch, calculation derived from counting the colonies in a small square with a strong lens gave 9750.

EXPERIMENT XXXII.—A mixture of seven grms. Mellin's food, hot water, and milk, each 150 c. cm., was carefully made and steamed. Two flasks were then filled with 100 c. cm. each and steamed for fifteen minutes.

2d day. Esmarchs, one drop, made from each.

4th. One Esmarch shows one colony, other none.

15th. No new colonies.

EXPERIMENT XXXIII.—Esmarch made with one drop of the fresh mixture used in the last experiment.

4th day. Thirty colonies.

10th. Forty colonies. No new colonies occurred later.

EXPERIMENT XXXIV.—Esmarch with one drop of the mixture used in the last two experiments, after standing for a day. By this time the top was brown and dirty looking.

2d day. The whole is dissolved.

EXPERIMENT XXXV.—One flask was filled with 100 c. cm. of milk and steamed for five minutes.

2d day. Esmarch with one drop made.

13th. Two colonies.

EXPERIMENT XXXVI.—An Esmarch was made with one drop of the fresh milk used in the last experiment.

4th day. Sixty colonies by count.

Shortly dissolved in places so no later count could be made.

EXPERIMENT XXXVII.—A sample of the milk used in the last two experiments was set aside for a day; then an Esmarch made with one drop.

3d day. Esmarch all dissolved.

EXPERIMENT XXXVIII.—Two flasks of milk, each 100 c. cm., were steamed for ten minutes.

2d day. Made an Esmarch with one drop from each.

4th. No colonies in the Esmarchs.

18th. No colonies.

EXPERIMENT XXXIX.—Esmarch with one drop of the fresh milk used in the last experiment.

4th day. Careful count gave 84 colonies. All dissolved in a few days.

EXPERIMENT XL. A sample of the milk used in the last two experiments was set aside for a day, when an Esmarch was made with one drop from it.

4th day. Esmarch dissolved.

EXPERIMENT XLI.—A mixture of cream 70 c. cm., milk 35 c. cm., lime water 70 c. cm., sugar and lime water 105 c. cm. made. From this, two flasks were filled with 100 c. cm. each, and steamed for fifteen minutes.

2d day. Esmarchs made with one drop from each.

9th. No colonies.

17th. Esmarchs sterile.

EXPERIMENT XLII.—Esmarch made with one drop of the fresh mixture used in the last experiment.

3d day. About 150 colonies.

7th. Gelatine dissolved.

EXPERIMENT XLIII.—A sample of cream mixture set aside.

2d day. Esmarch with one drop made.

3d. Looks to be crowded with colonies.

7th. All dissolved.

EXPERIMENT XLIV.—From a mixture of one part Anglo-Swiss condensed milk and ten parts water, two flasks were filled with 100 c. cm. each and steamed for fifteen minutes.

2d day. Esmarch with one drop made from each.

17th. Both Esmarchs are still sterile.

EXPERIMENT XLV. Esmarch with one drop made from the fresh mixture used in the last experiment.

3d day. Nothing visible yet.

13th. About 200 small and 2 large colonies.

EXPERIMENT XLVI.—A sample of the mixture, used in the last two, set aside for a day, when the customary Esmarch was made.

9th day. Two-thirds dissolved by about forty large colonies, solid parts stippled with pin-point colonies.

EXPERIMENT XLVII.—A cream mixture was made in the same proportions as before, and two flasks, 100 c. cm. each, filled from it; the flasks were then steamed for fifteen minutes.

2d day. Esmarch made as usual.

8th. No colonies to be seen.

16th. Both Esmarchs sterile.

EXPERIMENT XLVIII.—An Esmarch with one drop of the fresh cream mixture was made.

2d day. Several minute colonies.

8th. Esmarch dissolved.

EXPERIMENT XLIX.—A sample of the cream mixture used in the last two was stood aside for a day, when an Esmarch with one drop was made.

8th day. Dissolved.

I have put the results of the later experiments in a table, to help comparison. The *a* sign indicates that a large number of colonies developed and dissolved the gelatine before they had grown large enough to count.

In looking over the table it is at once seen that very few or no colonies developed from the material steamed. Out of twenty-two trials, in eight bacteria were found, in fourteen none were found. Of the eight cases, only one colony each was found in five.

The calculations from the fresh mixture before steaming show from 30, in a mixture of Mellin's food, to 1644, in a sample of milk; the average for the milk being about 75. In the one case where a count was secured from the mixture after standing a day, we found 9750. Very likely the others contained more.

It is, therefore, clear that the method followed has been very successful in killing bacteria, and keeping the milk for a long period. We

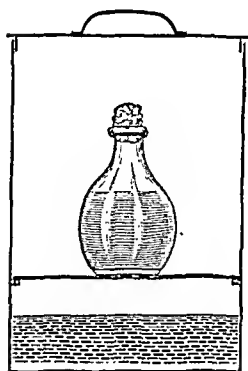
may thus lay down the following rules in answer to our problem: Stopper the flasks with cotton wool and heat them in the oven for thirty minutes, at a mild baking heat, or until the wool becomes brown. Pour the requisite quantity of food into the flask and then place in the heated steamer for fifteen minutes.

Experiment, and substance used.	Quantity.	Time steamed.	Time stood.	No. of bacteria	Experiment, and substance used.	Quantity.	Time steamed.	Time stood.	No. of bacteria.
	c. m.	seconds.				c. m.	seconds.		
XXI. Milk.	100	15	1 day.	0	XXXIII. Mellin's.	.....	.....	.....	40
Milk.	100	15	1 "	1	XXXIV. Mellin's.	.....	.....	1 day	a
Milk.	100	15	1 "	3	XXXV. Milk.	100	5	1 "	2
Milk.	100	15	1 "	10	XXXVI. Milk.	.....	.....	.....	60
XXII. Milk.	.....	.....	.....	1644	XXXVII. Milk.	.....	.....	1 day.	a
Milk.	.....	.....	.....	1391	XXXVIII. Milk.	100	10	1 "	0
XXIII. Milk.	100	15	1 day.	0	Milk.	100	10	1 "	0
Milk.	100	15	1 "	0	XXXIX. Milk.	.....	.....	.....	84
Milk.	100	15	1 "	0	XL. Milk.	.....	.....	1 day.	a
XXIV. Milk.	.....	.....	1 "	a	XLI. Cream milk.	100	15	1 "	0
Milk.	.....	.....	1 "	a	Cream milk.	100	15	1 "	0
XXVI. Mellin's.	100	15	1 "	1	XLII. Cream milk.	.....	.....	.....	150
Mellin's.	100	15	1 "	1	XLIII. Cream milk.	.....	.....	1 day.	a
XXVII. Mellin's.	.....	.....	.....	30	XLIV. Cond. milk.	100	15	1 "	0
Mellin's.	.....	.....	.....	34	Cond. milk.	100	15	1 "	0
XXVIII. Mellin's.	.....	.....	1 day.	a	XLV. Cond. milk.	.....	.....	.....	202
XXIX. Cond. milk.	100	15	1 "	1	XLVI. Cond. milk.	.....	.....	1 day.	a
Cond. milk.	100	15	1 "	0	XLVII. Cream milk.	100	15	1 "	0
XXX. Cond. milk.	.....	.....	.....	646	Cream milk.	100	15	1 "	0
Cond. milk.	.....	.....	.....	612	XLVIII. Cream milk.	.....	.....	.....	a
XXXI. Cond. milk.	.....	.....	1 day.	9750	XLIX. Cream milk.	.....	.....	1 day.	a
XXXII. Mellin's.	100	15	1 "	1					
Mellin's.	100	15	1 "	0					

The first rule is an advantage, and easily done, but not of great importance. The second is both easily done and goes to the root of the subject. Any cooking steamer with a perforated false bottom and a snug cover will do; or the lower part of a Chamberlin's steamer; the heat must be sufficient to keep the water in active ebullition.

For the benefit of those who are not familiar with the technique of bacteriology, or familiar with steamers, a diagram of a section is given, showing the principles and essential elements of construction. The vessel should be of good size, at least eight inches across the bottom

—better a foot, and sixteen inches high. Inside, four inches from the bottom, there should be a projecting rim, on which should rest a metal plate perforated with numerous holes a half inch in diameter. The cover should be tight so as to hold in the steam and prevent the ingress of air. For use, two or three inches of water should be placed in the bottom and brought to a fast boil, when the flasks should be set as near the centre of the diaphragm as possible, the cover replaced, and the whole allowed to steam for fifteen minutes. The flasks should then be taken out and stood in the cold, of course to be brought up to the body temperature before feeding.



The chief source of failure lies in an insufficient supply of steam to keep the upper chamber full; the heat must be ample, that of a range or Bunsen burner. Where the additional expense can be borne, it is better to cover the outside of the steamer with a thick jacket of felt, extending to within two inches of the bottom.

The milk should be steamed when *first* received, preferably in the flasks from which it is fed to the infants. This requires a few more bottles, as many as the infant is fed times during the day, but will well repay for the trouble. If the milk is allowed to stand before steaming, the advantages of the method are done away with in great part. The milk may be sweet, but has already been acted upon by bacteria, and is certainly unhealthy. In case a sufficient number of flasks cannot be afforded, the milk should be steamed in a few larger ones, kept stoppered with cotton-wool, and drawn from as needed. This is the best method to employ in hospitals, where the contents of a large flask will be used up in a short time.

The secret of the success of this method lies in the well-known fact that the vegetative forms of bacteria succumb to a moist temperature of 100°C . (212°F .); that spores develop slowly; and lastly, but not least, that in milk, being an excellent medium for growth, spores rarely form, spore-formation among bacteria, like seeding among higher plants, being a phenomenon of impaired growth. The dearth of spores in ordinary milk can be demonstrated by the use of the microscope and patience.

Fifteen minutes' steaming is advised rather than five or ten, as some of the earlier experiments reported show the longer period to be more effective. The entire mass of fluid used must be heated up to the boiling-point; for this time is requisite; it is not without significance that the fifteen minutes' steaming is that employed by bacteriologists to sterilize their media.

The preservation of some of the milk steamed but once is explained by the absence of any enduring spores from the start.

REVIEWS.

THE RULES OF ASEPTIC AND ANTISEPTIC SURGERY. A PRACTICAL TREATISE FOR THE USE OF STUDENTS AND THE GENERAL PRACTITIONER. By ARPAD GERSTER, M.D., Professor of Surgery at the New York Polyclinic; Visiting Surgeon to Mount Sinai Hospital and the German Hospital, New York. Illustrated with 248 engravings and 3 chromo-lithographic plates. Svo. pp. 326. New York: D. Appleton & Co., 1888.

It would be futile, within the compass of this review, to attempt anything like an elaborate analysis of this work; in fact, it presents an inherent and insuperable obstacle to this method of treatment, because a large portion of the text consists of notes of cases illustrative of the principles inculcated by the author. Nothing more, then, will be attempted than a hasty glance at the contents of the book, with such brief comments upon its peculiarities, excellences, or defects, as space may permit.

The conditions favoring sepsis and asepsis are first considered, and the former shown to be due invariably to the presence of micro-organisms. Attention is called to the fact that for some, as yet unexplained, reason aseptic precautions often fail to avert suppuration in diabetics.

The treatment of aseptic wounds is next considered, and full directions given as to cleansing hands, instruments, and the preparation of dressings. Simple yet effective and portable arrangements are suggested for private operations. Instead of cumbering the work by descriptions of the endless varieties of antiseptic dressings and solutions, the author mentions merely types of dressings, such that by simple exsiccation, chemical sterilization combined with exsiccation, Schede's modification of the dry dressing favoring the organization of moist blood-clot, and simple chemical sterilization. Carbolic acid, corrosive sublimate, and Theirsch's solutions are those relied upon. Drainage is by rubber tubes, which are left for from ten to fourteen days. Surely this is unnecessary and often harmful. Capillary drainage by catgut is thoroughly reliable, *if properly used in aseptic wounds*, even of the magnitude of the major amputation wounds, as we have proved for years past. If pus forms, of course capillary drainage will fail; but in the author's words, "The surgeon's acts determine the fate of a fresh wound," and "Its infection and suppuration are due to his technical faults of omission or commission." We would call attention also to the advantages of the addition of five parts of acid. tartaricum per thousand, to the corrosive sublimate solution; which, as Laplace has shown, prevents the formation of the inert albuminate of mercury, and preserves the solution; this is no omission of the author's, since these observations have only been recently published. Special applications of the aseptic method to the most diverse classes of cases then follow,

illustrated by the accounts of the operation, but *not* illustrated, we are bound to say in most instances, by the *cuts* intended for that purpose.

Soiled wounds with the application of *antiseptic* methods are fully considered, and the opportunity taken of pointing out the essential differences between the two methods.

Entirely too much space has been taken up with cuts of instruments, the technique of surgical dissection, and very imperfect accounts of the methods of diagnosis of many surgical affections. Hence these parts, while wholly unnecessary in a work on the Rules of Aseptic Surgery, etc., swell the bulk of the book, and will be apt to mislead the inexperienced, since, although correct as far as they go, they are not full enough to prevent a tyro from coming to wrong conclusions. The author's principle in surgical dissection to "do every step under the guidance of the eye," may be admissible in theory, and is certainly aimed at by all surgeons, but equally certainly will lead to unnecessary mutilations if carried out in every case; thus we do not think Gerster's advice is good with regard to herniotomy, to divide the stricture from without inward in all cases, as in certain cases this will result in nothing short of a laparotomy.

We are glad to note that Gerster, by a brief reference to the well-known experiments of Grawitz and a few pregnant sentences, disposes of the extremely disingenuous statements of Lawson Tait that his results are not dependent upon the recognition of the Listerian principle. Thus, he says, "This fact" (the power of absorption by the healthy peritoneum of a certain number of active pyogenic micrococci and their subsequent destruction in the blood) "goes very far to explain Lawson Tait's position, who, however, although disclaiming antiseptics, devotes most scrupulous care to *asepticism*—that is, to the cleansing of hands and instruments. His instruments are few, and selected with a view to simplicity. *His sponges are put into carbolic lotion for disinfection.* The water used for the immersion of his instruments is sterilized by boiling. Most of the bacteria contained in his "water from the tap," are innocuous—that is, non-pyogenic; and those that have the power to cause suppuration are too few to produce serious trouble. They are simply absorbed and killed off by the great germicide, the blood."

"Antisepsis" is considered in connection with the subject of idiopathic suppuration, wherein it clearly appears that "antisepsis" is merely a convenient name for the treatment of suppuration, which is shown to be *always* due to the presence of microorganisms and only to be checked by their destruction.

We heartily commend this section to the student, general practitioner, and to a certain number of surgeons who resemble the "deaf adder who stoppeth her ears to the voice of the charmer, harm he never so wisely."

In the section on the aseptic and antiseptic treatment of tubercle, the author contends that suppuration never results from the tubercle bacillus, but is caused by the accidental inoculation of the tubercular masses by one or more of the forms of the cocci of suppuration.

"Gonorrhœa, its antiseptic treatment," is to us one of the least satisfactory sections, but that is, perhaps, because "the wish became father to the thought," and we expected too much help in the treatment of this most annoying malady.

The closing chapter treats of syphilis, so far as its external lesions are concerned.

The chief, if not the only advantage offered by Dr. Gerster's method of treatment, is the impossibility of infecting another woman while the patient is suffering from a primary lesion, since "*syphilitic ulcers of every kind present a combination of syphilitic and pyogenic infection, whence it follows that the "aseptic protection of the surface of the primary induration offers an easy remedy for preventing the formation of the primary ulcer or chancre."* Few of us are fortunate enough to see a primary lesion *before* ulceration has occurred.

Should more proof be adduced than that afforded by the author's single case, surgeons would do well to imitate Dr. Gerster, although even without antiseptic drugs we think the character and bulk of the dressings would effectually prevent intercourse, and, therefore, infection of another! Unfortunately, he does not tell us how to dress a woman with a primary lesion before ulceration has occurred.

In conclusion, we would commend this work to our readers, believing that it will inform the ignorant and confirm the wavering better than any of its predecessors not only by its merits, but because it is not *controversial*.

C. B. N.

TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY. Twenty-third annual meeting, 1887. Boston: Published by the Society.

THIS, the oldest of the American special societies, publishes its transactions in annual parts that, in external appearance, do not compare favorably with the neat volumes issued by most of its younger sisters. But on looking within, one easily perceives evidence of such scientific success, that it is not surprising that the society has shown great unwillingness to change the time, place, and conditions of its meetings; even to secure the opportunity of meeting professional brethren devoted to other lines of professional work. The success of the society, working on its present plan, is already evident; that equal or greater success would attend the proposed departure, is quite probable, but not yet demonstrated. The minutes of the proceedings, here published with the scientific papers and discussions, are very suggestive of the means by which the society secures the success of its meetings. They are held at the time of year when the members have most leisure to attend, at a delightful summer resort where there is little liability to outside distractions; three meetings a day, extending from 9 A.M. to 11 P.M.; routine business reduced to a minimum; and "medical politics" left out altogether.

Among the important papers contained in this issue we find one by Dr. Swan M. Burnett entitled, "Clinical Contributions to the Study of Ring Scotoma." In this affection the defect in the field of vision takes the form of a more or less complete ring, or circular zone; while the centre of the field and the extreme periphery remain more nearly normal. The histories of two cases are here given, with seventeen cuts, illustrating the extent of the scotomata at various stages in their progress; and a good bibliography of the subject is appended. This affec-

tion has usually been regarded as due to some lesion of the retina or choroid; but Burnett believes it to be due to a retro-ocular neuritis, and effectively supports his view, by showing it in harmony with the observed facts, both anatomical and clinical. In the discussion which followed the reading of this paper five additional cases were reported.

Dr. F. Buller describes "A Rare Form of Ophthalmia Granulosa Associated with Ichthyosis," hitherto unrecognized. It is distinguished from the ordinary forms of trachoma by differences in the form, size, and color of the granulations, and their extreme hardness; by absence of any tendency to inflammatory exacerbations; by the character of the secretions; by the apparently non-contagious character of the affection; and by its absolutely passive behavior under the ordinary treatment for trachoma.

Dr. S. Theobald reports "A Case of Recurrent Retinal Hemorrhages, followed by the Outgrowth of Numerous Bloodvessels from the Optic Disk into the Vitreous Humor." This outgrowth of bloodvessels was followed by a return of vision to the normal, and a cessation of the hemorrhages, at least temporarily. The reported discussion on this paper includes similar cases narrated by Drs. Carmalt and Wadsworth.

Dr. George C. Harlan gives a minute account of a case of "Embolism of the Central Retinal Artery," first seen within eighteen hours of its occurrence. At this time, "The arteries were very pale, though not much narrowed, and some of the smaller branches seemed lost in the retinal edema. The larger veins were contracted in places, but generally of full calibre. The superior temporal vein was contracted to a thread on the disk and a little beyond it, but was slightly distended toward the periphery, and the blood could be distinctly seen moving through it, in bead-like sections, slowly and continuously toward the disk. The same kind of movement, in the opposite direction, could be distinguished with some difficulty in the corresponding artery." The next day this movement had ceased in the artery, and was just ceasing in the vein. Ultimately, the color of the fundus became normal. "Disk dead white. Veins rather narrow, uniform calibre, light color." Two of the larger arteries were just visible, near the disk. "They were pale and narrow, and a delicate white line could be traced along their margins." "Some of the smaller branches, before invisible, could now be traced by a just perceptible white thread." This paper is illustrated by a plate showing the earlier, and the final appearances of the fundus.

Dr. William F. Norris reported cases of "Primary Acute, Primary Hemorrhagic, and Secondary Glaucoma," and illustrated his remarks upon them by photo-micrographs, shown as lantern-slides, which are reproduced. Among other things, a study of the cicatrices showed "In each case a displacement of the relative position of the corneal flap and of the corneal stump from which it was cut. In each instance the edge of the flap rides up a little, while the cut edge of the proximal portion of the cornea projects deeper into the anterior chamber." After pointing out the fact that the majority of the similar plates in Becker's *Atlas* show a corresponding displacement of the cut edges, Norris continues: "These facts seem to me to present good anatomical reasons for the utmost diligence on the part of the practitioner to prevent any undue motion of either the body or eyes of the patient after operations, until the wound is sufficiently closed by adherence of the cut surfaces to make it probable that it will not readily give way or be displaced." In this

connection attention might be called to the fact, that in these operations the corneal incision is always somewhat oblique, and that the obliquity is such that, when the sides are in any way forced together, the flap will always ride up on the stump in the way described above. Now since any pressure made upon the wound, through the lids, will tend to force the lips of the wound together, this series of cases should direct attention to the danger of displacement by a dressing which makes decided pressure on the eyeball.

Dr. C. S. Bull contributes a paper on "Passive Motion in the Treatment of Paralysis of the Ocular Muscles," giving the results obtained in twenty-one cases, by the use of the method proposed by Prof. Michel. In carrying out this plan of treatment: "The paralyzed muscle is to be seized at its line of sclerotic implantation with a pair of ordinary fixation forceps, and the eyeball is then to be pulled backward and forward in the direction of the line of contraction of the affected muscle as far as possible toward, or even beyond the limit of the contraction, and then back in the reverse direction, as far as the limit of extreme relaxation, and these to-and-fro movements are to be continued for about two minutes." "The pain caused by the manipulation, when no anæsthetic is used, is in most cases severe, and is by no means entirely relieved by cocaine. The conjunctival irritation caused by the treatment is considerable, but usually transient." Of the cases here reported, eight were cured, six were partially relieved, and seven were not improved. Some of the cures were accomplished after the failure of other methods of treatment to give relief.

Dr. O. F. Wadsworth reports "A Case of Congenital Zonular Grayish-white Opacity around the Fovea;" also one of "Detachment of the Retina in Both Eyes, with Albuminuria of Pregnancy; Replacement of Retina." Dr. S. D. Risley gives additional cases of "Hypermetropic Refraction Passing while under Observation into Myopia;" and Dr. B. A. Randall, "A Case of Rapid Development of Lenticular Opacity." But we cannot here refer, even by title only, to many of the important papers these *Transactions* contain. As usual, cataract extraction, and new instruments and appliances of various kinds, occupy a share of space. The financial vigor and liberality of the Society are evinced by some sixty original illustrations, including two chromo-lithographs of the fundus from sketches by Dr. P. N. K. Schwenk. There is also a photograph of the late Dr. Ezra Dyer, one of the founders of the Society, with a memorial sketch by Dr. H. Derby.

E. J.

DISEASES OF THE BONES: THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT.

By THOMAS JONES, F.R.C.S. Eng., B.S. Lond.; Surgeon to the Manchester Royal Infirmary; Lecturer on Practical Surgery in the Owens College, Victoria University; Consulting Surgeon to the Children's Hospital, Pendlebury, Manchester. With illustrations. 8vo. pp. 361. London: Smith, Elder & Co., 1887.

THIS work aims to be an exposition of our present knowledge of diseases of the bones, viewed from a clinical standpoint, and is fully

illustrated by some very creditable chromo-lithographic plates, and a number of admirable etchings. Owing to the rarity of modern monographs treating of bone disease, there certainly is room for a work of this kind, and this vacancy is, upon the whole, well filled by the present monograph, although the different sections of the book are of very unequal merit. A cursory glance at some of the most striking points which we have noted while perusing the book will give some idea of the merits and demerits of the work.

The utter absence of all accessory aids to the osseous venous blood-currents, such as is afforded by the contractions of muscles, is emphasized, explaining, as it does, so many points in bone pathology. Calcification of the costal cartilages is regarded not as "a normal senile change," but a degeneration. When speaking of the osseous changes in nervous diseases, it is stated that only ten per cent. of the insane present clear and precise bony lesions which render fracture certain upon the application of slight force, while in the remainder the skeleton resembles that of those who suffer from any general failure of nutrition, such as phthisis, or old age. Something akin to osteomalacia is also observed, which is productive of various deformities.

A medico-legal point of importance is dwelt upon, viz., that comparatively trivial blows incurred by falls upon the trochanter major may in the *young* as well as in the old produce "shortening of the neck and considerable deformity of the limb," and a case in point of a patient aged fifteen years is cited. We cannot understand the propriety of the advice that when suppuration follows bone diseases, the result of typhoid and other fevers, "the disease being chronic and circumscribed, it is better to allow the pus to be absorbed or to escape spontaneously." We did think that a "pyogenic membrane" was a thing of the past, but it appears not, at least to Mr. Jones. Attention is called to the occurrence, "long after growth is complete," of acute suppurative osteomyelitis in adults, and that the prognosis is much graver in them than in the young.

We think the author's advice, while differing from the established practice in chronic osteitis of the articular extremities of bone resulting in caries, and attended with *severe pain*, is excellent, viz., "to expose the bone and open up its cancellous interior with a trephine;" many a joint will thus be saved. Early and free removal of the portion of the bone affected is recommended in phosphorous necrosis as "the only treatment at all likely to succeed." Two cases of another surgeon's are quoted to show the propriety of occasionally resorting to free incisions down to the bone, in cases of specific periostitis which resist long and well-directed antisyphilitic treatment.

Mr. Jones recognizes "no essential difference between the tubercular and scrofulous diseases of bone." "An affection is stamped as tubercular when the diseased tissues possess the typical structure . . . and the bacillus tuberculosis is present." König's rule with regard to operations for bone-tubercle is stated and approved, viz.: "The surgeon should interfere in tuberculosis of bones and joints only when the local condition demands it, and the fear of secondary general tubercular affection does not constitute a sufficient indication." Moreover, the author believes that "constitutional infection is often favored, if not directly provoked, by the operation and by it alone." Actinomycosis has a short chapter devoted to its consideration.

Mr. Jones believes in the saw for "all osteotomies" and having used it in "something like three hundred osteotomies without any mishap," he says "I shall be slow to adopt any other instrument." Osteoclasis is fully considered, but the conclusion arrived at is that "it is difficult to see how this proceeding ever hopes to supersede osteotomy, which is simple, requires no complicated instruments, is free from danger, and yields such excellent results."

Electrolysis is recommended for fibrous naso-pharyngeal polypi when repeated hemorrhages have reduced the patient to such a condition as to forbid a prolonged operation, as by this means the bleeding has been checked, and the bulk of the tumor so diminished as "to render its removal through the ordinary channels an easy matter."

The chapters on malignant tumors of bone are the best in the book, and are so replete with points of interest as to demand full perusal to do them justice. We must, however, take exception to the positive injunction that "no attempt should be made to remove sarcomas of the skull," since the fibrous variety is, and has proved, amenable to operative interference. Sarcomata of the foot are shown to be so apt to generalize that nothing short of amputation at some distance from the disease should be contemplated. Operations for subperiosteal sarcomata of the clavicle are discountenanced, as the disease recurs at an early period. The occurrence of primary carcinoma is admitted, and a case (epithelioma) in the author's practice reported.

In conclusion, let us say that while not exactly our ideal of what such a book should be, it is a decided addition to the literature of the subject, containing, as it does, a condensed account of what of prime importance is known of, or is recommended for, the affections described. Moreover, the author's recommendations carry with them the conviction that they are founded on an extensive clinical experience, and when there are differing plans of procedure we think that Mr. Jones's discrimination is just. In fine, we think that the book is a reliable guide to practice.

C. B. N.

CHEMICAL ANALYSIS OF HEALTHY AND DISEASED URINE. QUALITATIVE AND QUANTITATIVE. By T. C. VAN NÜYS, Professor of Chemistry, Indiana University. 8vo. pp. 187. Philadelphia: P. Blakiston, Son & Co., 1888.

PRACTICAL URINE TESTING. A GUIDE TO OFFICE AND BEDSIDE URINE ANALYSIS. FOR PHYSICIANS AND STUDENTS. By CHARLES GODWIN JENNINGS, M.D., Professor of Chemistry and Diseases of Children, Detroit College of Medicine. 12mo. pp. 124. Detroit: Haynes & Co., 1887.

THE URINE. MEMORANDA, CHEMICAL AND MICROSCOPICAL. By J. W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College. 12mo. pp. 43. Philadelphia: P. Blakiston, Son & Co., 1887.

VAN NÜYS's volume may, without question, be considered a valuable addition to the literature of this department of medicine. As a chemist,

the author has entered thoroughly into the chemical side of the subject; yet the reactions given, and the methods of work described, are so clearly explained that a clinician with ordinary training in medical chemistry will be able to understand all, or nearly all, of them. Nor has the author failed to treat the matter from a clinical standpoint, but has indicated the significance of the various bodies found in the urine, either abnormally present or present in abnormal amount. The first chapter is devoted to the properties of the urine, and to the recognition of its normal organic constituents, including urea, the xanthic group of compounds, kreatin, hippuric acid, indican, and others. The second takes up the inorganic constituents. The third chapter, given to the albumens and sugar, was especially interesting to us. It contains a most convenient tabular arrangement of the various reactions of the albuminous bodies—serum albumen, globulin, hemi-albuminose, peptone, and mucin—a feature which, of itself alone, should render the book of value to every physician. We are pleased to see that the phenyl-hydracin reaction for sugar is included; though we note the omission of all reference to the tests with bismuth, indigo-carmin, and picric acid, and to the naphthol and thymol reactions. We regret to say that acetone, diacetic acid, oxybutyric acid, and formic acid, of whose exact relation to diabetes and of whose detection in the urine we so much need to know more, are not mentioned by the author. The fourth chapter contains descriptions of other abnormal constituents of the urine, such as bile, blood, leucin, tyrosin, neurin, lecithin, etc., together with the more reliable tests for them. The fifth chapter includes an illustrated description of the sediments peculiar to urine; the sixth consists of a systematic scheme for the qualitative analysis of healthy and diseased urine; gives clear, concise information for the methods of procedure to be employed, and is followed by a similar scheme for the microscopical and chemical study of the urinary sediment; while the seventh chapter takes up the qualitative analysis of calculi. The remainder of the book is occupied by the subject of quantitative examination. This portion is treated very fully, and the author gives descriptions of nearly all the methods employed in quantitative work. Almost one-half of the volume is allotted to this department.

It is but right to correct a mistake regarding an apparatus described here. That, namely, figured as "Green's," for the hypobromite method of estimating urea, is, we believe, the one designed by Marshall, and now used in the University of Pennsylvania. Green's apparatus is illustrated in the fifth edition of Tyson's *Guide to the Practical Examination of Urine*.

Written on a plan entirely different from that of the last work, and only one-half its size, Jennings's little book discusses as briefly as possible the subjects which it must needs contain. "It is the aim of the author . . . to give concise directions for office and bedside testing, embodying all the latest advances that have proved of value," and the aim appears all to have been fulfilled. By means of heavy type for headings, and the emphasized words, the book has been made a convenient guide for rapid work. Part I. treats briefly of the chemistry of the urine and of the relative delicacy of the various reactions; and contains, in addition, a large amount of tabularly arranged information as to the diseased states in which alteration of the urinary secretion is present. We have, for example, an

etiological classification of albuminurias, and one of hæmaturias, and lists of diseases in which certain of the principal normal urinary constituents are increased or diminished in amount, or in which abnormal substances appear. For ready reference to information of this nature we know of no more convenient publication, especially for the practising physician. Part II. is devoted solely to the analysis of the urine, without further mention of the diseases concerned. Though very comprehensive, including a large number of the reactions usually published for qualitative work, the descriptions are necessarily very brief. The book, in this particular, can be recommended to the busy practitioner rather than to him who is greatly interested in urinary analysis—this being presumably the intention of the author. The same remark applies even more aptly to the chapter on quantitative analysis, in which Liebig's method for the determination of urea is not referred to; the hypobromite method being given as more convenient. The remainder of the volume is occupied by the space devoted to the examination of urinary sediments: each being classified under "microscopical character," "chemical character," and "occurrence."

We find, further, an analytical scheme for the study of calculi, taken from Witthaus's "Guide;" and, lastly, a description of the apparatus and reagents necessary to conduct the tests detailed in the body of the work.

Holland's is a still smaller book than the preceding in the number of pages contained, though the type is often not so large. It consists of "memoranda, chemical and microscopical, for laboratory use," and is by far not so complete as Jennings's "Guide." The covers are hinged to open at the top, and only one side of each leaf is printed; thus affording opportunity for the insertion of notes. The arrangement of the book is quite different from that of the other two; qualitative and quantitative analysis being united with microscopical examination, and with occasional notes on "import," in the discussion of the various constituents of the urine. After a few remarks on color, odor, reaction, and specific gravity, with the approximate determination of the total solids present, the study of the inorganic ingredients is discussed very briefly, and this followed by the consideration of the normal and abnormal organic substances of the urine; though "bile" receives less than a dozen lines under "color." Serum albumen is the only one of the albuminous bodies considered, but sugar is more fully treated. Acetone and diacetic acid are wholly ignored. The book contains, in addition, a short method of procedure for the analysis of urinary concretions. The illustrations, which are numerous, are well executed, and superior to those seen in many of the smaller books of this class.

J. P. C. G.

ANATOMY, DESCRIPTIVE AND TOPOGRAPHICAL, IN 625 ILLUSTRATIONS.

By CARL HEITZMAN, M.D. English edition by LOUIS HEITZMAN, M.D.
8vo. pp. xxii., 308. New York: J. H. Vail & Co., 1887.

THE title expresses exactly the purpose of this book. It consists essentially of illustrations explained by brief references in the text and

covering the whole field of human anatomy. Of these plates both as to accuracy and artistic skill it is difficult to speak too highly. Those on the organs of sense are especially good and clear, and the number of sections make the work more than ordinarily valuable. As a novelty, in such works at least, we notice also plates giving the directions of the hair and of the cleansings of the skin which direct attention to a matter too little studied.

We are not sorry to see so many Latin names retained in the plates, as familiarity with these classical names we fear is becoming a lost bit of scholarly attainment on the part of many of the younger members of the profession. In view of the paucity of the text we should much fear that the book will scarcely ever become a favorite with American students, but those who do purchase it will have no occasion to regret it.

W. W. K.

HANDBUCH DER OHRENHEILKUNDE: FÜR AERZTE UND STUDIRENDE. Von DR. WILHELM KIRCHNER, Docenter der Ohrenheilkunde an der Königl. Universität in Würzburg. Zweite Auflage. Mit. 41. Abbildungen in Holzschnitt. Pp. 218. Berlin: F. Wreder, 1888.

MANUAL OF AURAL THERAPEUTICS, FOR PHYSICIANS AND STUDENTS. By DR. WILLIAM KIRCHNER, Instructor in Otology in the University of Würzburg.

THIS is Vol. XI. of Wreder's series of short medical treatises. It belongs to that class of books which may be called the contradictory or useless class. Because, while professing to be for physicians (not specialists) and for students, who are supposed to know even less than the general physician, books of this kind do not give any anatomy or physiology, needed so greatly by the class the book is professedly prepared for, yet enter largely into special forms of treatment, with their imposing paraphernalia of instruments, and even describe operations like tenotomy of the tensor tympani, which is not easily performed by an expert. How can such a book be of value to a medical student, or even to a general practitioner? It, of course, calls attention to the writer as one fully prepared to treat the diseases which the book discusses.

The few anatomical figures which are given are almost invariably very poor, and even erroneous—like, for example, Fig. 1. The instruments represented are clumsy and old-fashioned, the improved ones, like the polypus snare with the wire concealed in the barrel, being omitted entirely. We regret to feel forced to say that we cannot see why such books are issued, nor what good they can accomplish after they are published, excepting to advertise the author and the publisher. The short chapter on "Simulation" is good, but not original. C. H. B.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE HYPODERMATIC INJECTION OF QUININE.

The discovery of a suitable preparation of quinine for subcutaneous injection has occupied the researches of many, but with moderate success. In the issue of the *Bulletin Général de Thérapeutique* for March 15, 1888, Drs. DE BUERMANN and VILLEJEAN present a tolerably full historical account of the salts of quinine with reference to their solubility. They find that the neutral hydrochlorate possesses the quality in a higher degree than any other salt.

The requisites of a quinine salt to be used for subcutaneous injection are, 1st, that it be dissolved in a sufficient quantity of water within the capacity of the ordinary syringe, and 2d, that it be free from any irritant quality that may set up local inflammation. These requisites are supplied in the neutral hydrochlorate of quinine.

In the table prepared by the authors of the paper, the following figures are given :

One part of neutral hydrochlorate of quinine is soluble in	. 0.66 of water.
One part of neutral sulphovinate in . . . .	. 0.70 “
One part of neutral bromhydrate in . . . .	. 6.33 “
One part of neutral sulphate in . . . .	. 9.00 “

ON THE TREATMENT OF TYPHOID FEVER.

In the last issue of *Centralblt. für die gesammte Therapie* for March, 1888, there is an abstract of a paper in which ZIEMSEN, amongst other measures, discusses the action of calomel administered with the view to destroy the infection and to lower the temperature. This practice is entitled by our German colleagues the “specific,” and consists in giving calomel in three doses of eight grains each every two hours. It causes the greenish or spinach-colored stools known as “calomel stools,” and the temperature falls, often to normal, and this reduction may last twelve hours. Ziemssen holds that the

germicide action is due to the formation of a minute quantity of bichloride of mercury. The specific method does not shorten the duration of the fever, but its subsequent course is milder.

THE TREATMENT OF PHTHISIS BY SUBCUTANEOUS INJECTION, AND INHALATION OF SULPHUROUS ACID GAS.

DR. DARIEX proposes to administer sulphurous acid in the treatment of phthisis, by modes that secure the most rapid and effective action (*Bull. Gén. de Thérap.*, etc., Feb. 29, 1888). After an historical preliminary, in which we see no reference to the investigations of Dr. Dewar, of Scotland, which appeared several years ago, the most notable that have been made, our author gives an account of his method of preparing the gas, of its effects, and its applications in the treatment of consumption.

An increase of the body-weight is soon effected. During the first few days the expectoration becomes liquid and copious, the sputa proper bearing a small proportion to the watery fluid; but after four to six days a considerable diminution in the amount is noted, and the expectoration becomes much easier. A marked lessening in the oppression is observed, and this is the more decided when the remedy is administered subcutaneously. Appetite improves, sleep becomes more sound and refreshing, and the sweating lessens and sometimes disappears.

As respects the physical signs, it is observed that the *râles* lessen in amount as the expectoration declines, and all the other signs proportionally diminish. The bacilli seem to escape injury, but they decline in number as the quantity of expectoration diminishes.

The conclusions reached by Dariex are:

1st. That sulphurous acid gas is not a specific for phthisis in the sense that the iodides are for tertiary syphilis; but it has considerable power to retard the progress of the changes in the lungs and to lessen the severity of the symptoms. When given in suitable cases, cough and expectoration lessen, the sweats disappear, and an increase in weight takes place.

An ingenious method of preparing sulphurous acid for inhalation is that proposed by M. DESCHIENS (*Bull. de Thérap.*, Feb. 29, 1888). It consists of an iron vessel to hold the sulphur, with an aperture at the bottom, having a regulating screw to control the amount falling on the heated plate.

STROPHANTHUS IN TYPHOID FEVER.

DR. V. POULET publishes a paper (*Bull. Gén. de Thérap.*, Feb. 29, 1888) on the use of strophanthus in typhoid fever, in which he ascribes remarkable, indeed, surprising powers to this agent. "The results obtained," he says, "are truly marvellous." He narrates three cases to illustrate the character of the effects produced. He finds it an *incomparable antithermique*, or antipyretic, reducing the fever heat two or three degrees, and maintaining the reduction. He also regards it as an effective agent in the hemorrhage of typhoid, disagreeing in this respect with Dr. Emil Pins, of Vienna, who maintains, on theoretical grounds, that it is dangerous. The preparation used by Poulet is the extract.

OXYNAPHTHOIC ACID.

In the issue of the *Archiv für experimentelle Pathologie und Pharmacologie* for Feb. 29, 1888, VON HOFMEISTER publishes a paper on the physiological actions of this new artificial product. He finds it to be an excellent antiseptic—stronger than carbolic acid or salicylic acid. It does not act on pepsin sufficiently to impair its ferment property, and can, therefore, be given freely by the stomach.

The combination of the acid with sodium is a salt having ready solubility in water, and general properties corresponding to those of its congeners. It is antiseptic, antipyretic, and a germicide as applied externally in parasitic skin diseases. Our author promises further information.

THE VALUE OF HYPODERMATIC INJECTIONS OF EUCALYPTOL AND IODOFORM IN PHTHISIS.

Much work has been done in the hypodermatic treatment of phthisis. The more recent experiences are stated in a paper by M. EDMOND HABERT (*Revue de Thérap.*, March 15, 1888). Eucalyptol is dissolved in vaseline oil (75 grains to 300 grains). Sometimes iodoform is mixed with it; more frequently alone in the same solution. In this way Habert has used daily from 6 to 15 grains of eucalyptol, or the same quantity of iodoform.

The general result may be stated as follows:

In incipient cases the cough is loosened, and the expectoration is changed in character and much diminished in amount; but the bacillus does not disappear. In cases of advanced tuberculosis, no considerable benefit is derived in any case.

FLOUR OF SULPHUR IN SCIATICA.

The extraordinary statement is made that the topical application of sulphur, in powder, is a highly effective remedy for sciatica (*Revue de Thérapeutique*, etc., March 15, 1888). Several years ago DR. HENRI GUÉNEAU MUSSY brought it to the attention of the Therapeutical Society, and recently Dr. L. Duchesne has reported successful cases thus treated.

The method consists in applying very freely flour of sulphur to a bed-sheet and then wrapping the affected member in it, allowing it to remain for the night. It is said that one night suffices to cure. Duchesne narrates a case of long standing, and of great severity, in a woman of forty years, who was cured by one night of the sulphur thus applied.

That the sulphur penetrates the system is shown by the fact that the urine in a short time smells strongly of sulphuretted hydrogen.

THE SUBCUTANEOUS USE OF METHYLAL IN DELIRIUM TREMENS.

KRAFFT-EBING, the eminent alienist, has recently (*Therapeutische Monatshefte*, February, 1888, page 55) reported the results of the use by subcutaneous injection of the new hypnotic—methylal. He illustrates the action by numerous cases. In general terms, he concludes that this agent is more useful in asthenic conditions, and is not so effective when cerebral hyperæmia exists. The sleep caused by it is similar to natural sleep, and no important

or unpleasant after-effects are experienced from it. Krafft-Ebing finds it the best remedy for delirium tremens now in our possession.

The preparation used by him is a solution in distilled water, and the dose from one-half a grain to two grains, used subcutaneously.

ANTHRAROBIN—A NEW REMEDY FOR SKIN DISEASES.

The chemical characteristics of the new remedy, anthrarobin, were set forth originally by PROF. LIEBERMANN, but the first study of its physiological actions was made by Jaffé and Darmstädter. It has similar properties to chrysarobin and pyrogallic acid; but it is less active than the former, but is stronger than the latter. The following are formulæ proposed by Behrend (*Therapeut. Monatshefte*, March, 1888, p. 101):

Anthrarobini	10 parts.
Ol. olivæ	30 "
Lanolini	60 " —M.
Ft. ung. 10 per cent.	
Anthrarobini	10 parts.
Alcohol	90 " —M.
Anthrarobini	10 parts.
Boracis	8 "
Aq. destil.	80 "

He has used anthrarobin with success in psoriasis, herpes tonsurans, and other parasitic skin diseases.

AMYLEN HYDRATE AS A HYPNOTIC.

Increasing experience confirms the first reports on the hypnotic power of amylen hydrate. DR. GÜRTLER, of Königsberg (*Berliner klin. Wochenschrift*, No. 6, 1888), gives the results of its use in cases of alcoholism, epilepsy, morphinism, cerebral meningitis, spasmodic cough, cystitis, and other maladies. In these and other diseases he has found it to act promptly and efficiently as an hypnotic.

The formulæ advised by Gürtler are as follows:

Amylen hydrat.	7 parts.
Aquæ destil.	40 "
Syrp. rubi	30 "

or,

Amylen hydrat.	7 parts.
Aquæ menth. pip.	40 "
Syrp. rubi	30 "
Ol. menth. pip.	gtt. 1

Dose.—45 to 90 grains of amylen hydrate for an adult.

SALICYLIC ACID AND SALOL IN ACUTE RHEUMATISM.

AUFRECHT has made some observations on the comparative value of salicylic acid and salol in rheumatismal diseases. He decides that salicylic acid is the more effective in the acute, and salol in the chronic forms.

TRIBROMPHENOL.

A new substitution product, in which bromine and carbolic acid are combined, has recently been added to the very numerous agents already before the medical profession (*Deut. med. Wochen.*, quoted in *Therapeut. Monatshefte* for March, 1888).

DR. F. GRIMM finds tribromphenol an efficient antiseptic in skin diseases. It is slightly soluble in water. It is not irritating to the skin. Topically, it is an efficient application to wounds, to atonic granulations, and strumous ulcers. It is an efficient antiseptic, and unirritating topical remedy in catarrhal affections of the mucous membranes. It remains to be shown how effective it is as a poison to bacteria.

Although fitted especially for topical use, it promises well as an internal remedy in affections of the stomach and intestine.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,

PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-
DOOR DEPARTMENT, NEW YORK.

WEIL'S DISEASE.

FIEDLER (*Deutsch. Arch.*, B. 42, H. 4, 281) devotes some attention to the study of the febrile affection described by Weil in 1886, and since then discussed by Goldschmidt, Aufrecht, Wagner, Roth, and Haas, making a total of twenty cases. He then reports twelve more instances of the disease, which he has observed during the past eleven years, but which he was hitherto unable to classify. He does not believe that it is an abortive form of typhoid with icterus, as Weil has suggested; since, in an experience of about 5000 cases of typhoid fever, he has never seen a case beginning with severe general symptoms and chill develop icterus with swelling and tenderness of the liver on the second or third day, and then on the eighth or tenth day be completely free from fever, and convalescent. The author further emphasizes, as distinguishing it from typhoid, the pain in the muscles, especially in the calves; the typical temperature curve; the absence of catarrh of the lungs, the rapidity of the pulse, and various other symptoms.

After an extended discussion of the disease he draws the following conclusions from his own observations:

1. The disease first described by Weil in 1886 is an acute infectious or toxic affection, which has nothing in common with typhoid fever, or any other disorder. It is a *morbus sui generis*.

2. The disease begins quite suddenly, without prodromal symptoms, often with a chill.
3. Symptoms always present are: fever, headache, evidences of gastric disturbance, jaundice, and muscular pain (especially in the calves).
4. The fever has a typical course, and lasts eight or ten days. Sometimes, after the fall of temperature, which occurs by steps, a relapse of the fever is seen. The pulse is at first frequent, later subnormal.
5. The spleen and liver are commonly swollen, but not always; the latter is often tender on pressure.
6. Nephritis is often observed in this disease.
7. Herpes and erythema at times occur.
8. The disease has, in general, a favorable prognosis.
9. It attacks chiefly the male sex at the prime of life, and develops usually during the hot season of the year.
10. The cause of the disease is still entirely unknown; though the circumstance, that out of twelve male patients nine were butchers, makes it probable that butchers are more especially liable than other persons to be attacked by the agencies which produce the affection.

ACROMEGALIE.

ERB (*Deutsch. Arch.*, Bd. 42, Heft 4, 295) contributes an elaborate illustrated article on this very rare affection, which has been described under various names. He reports a new case of the disease with the greatest care, and gives tables of the measurements of numerous parts of the body, of the electrical reactions of various nerves, etc. He also details the subsequent history of the 2 cases described by Friedreich twenty years ago, and adds synopses of all the cases which have been hitherto published; in all 11 including his own.

In comparing these 11 cases we find that there have been 8 men and 3 women affected. All classes are liable to it, though it seems to attack the lower classes most especially. At any time of life, too, the disease may make its appearance. Thus, in 3 instances it was first noticed under twenty years, in 3 when between twenty and thirty, in 3 from thirty to forty, in 2 from forty to fifty. The development of the affection is slow and creeping. The initial symptoms which precede or accompany the enlargement of the extremities and the head are in most cases not very pronounced; consisting in a sense of weakness and tire, drowsiness, paræsthesia, and headache; and in some cases severe attacks of migraine, pain throughout the whole body, etc. The most striking symptom in all cases is the advancing enlargement of the extremities, particularly the colossal development of the hands and feet. The legs and forearms, especially in the region of the ankles and wrists, partake in the enlargement, as does the face, though chiefly in the lower part. The cause of the enlargement, is found in an overgrowth of the bones themselves, especially in their breadth and thickness. The skin is involved to only a slight extent, and never shows any thickening as in elephantiasis or myxœdema. Bones, other than in the extremities, are sometimes attacked—e.g., the ribs, sternum, clavicles, and not seldom the vertebral column, which becomes curved and thickened. The bones of the face are almost always

affected, particularly the lower jaw and the cheek bones. The thickening of the under lip, nose, and tongue is also almost constant. Enlargement of the ears, eyelids, larynx, and epiglottis is noted in some cases. Thickening of the femur, humerus, and scapula is rare, but the patella is almost always involved.

Among inconstant symptoms may be noticed, enlargement of the heart with asthmatic affections, albuminuria, thirst, weakness of the muscular system, disorders of sight, headache, diminution of intelligence, etc. Perhaps an important symptom is the affection of the thyroid, seen in 8 cases, in 6 cases it was atrophic, and in 2 hypertrophied. Finally, in 3 cases dulness in the upper sternal region probably indicated an enlarged thymus.

The course of the disease is slow, though sometimes rapid at first. It may slowly lead to death through some complication of the internal organs—probably an integral part of the disease—or it may remain stationary for decades.

The diagnosis is not difficult, as the disease is so well characterized. In *elephantiasis* the tissues of the skin are very much thickened and oedematous. In *myxœdema* the quality of the skin is very characteristic; turgid and swollen without being oedematous, partly pale, partly cyanotic. The face has a stupid expression, and is rounded instead of being oval, as in acromegalie; particularly is there no widespread hyperostosis. *Leontiasis ossea*, of Virchow, affects especially the bones of the skull, producing irregular bony tuberosities, and making a monstrosity out of the head. The extremities are uninvolved. In *osteitis deformans*, of Paget, the painful enlargement of the long bones is irregular, not symmetrical; and there is no enormous development of the hands and feet. Many cases of *arthritis deformans* resemble acromegalie superficially, but the latter disease has no true deformity of the joints, no tenderness, no grating, no exudate, etc.

Autopsies have been made in 3 cases, the following being the most important conditions noted: Widespread hyperostosis of the bones, and a tumor of the hypophysis cerebri in all 3 cases. In 2 cases there was hyperplasia of the brain, of the sympathetic and cerebral nerves, and in part of the spinal nerves. The thyroid and the spleen were enlarged in 2 cases, and the thymus in 1 case.

Erb concludes that the nature of the disorder is a hyperplasia of the most diverse tissues of the body; first of all, of the connective tissues, best seen in the bones. There is also hyperplasia of the brain and nerves, always this change of the hypophysis, certain alterations of the thyroid, and persistence and hyperplasia of the thymus. It seems clear that this widespread tissue growth must be an irritative process, and the question arises whence the irritation comes. It might be from outside—chemical or bacteriological in its nature; but this does not seem at all probable. The irritation might, on the other hand, be from within the body, either a tropho-neurotic influence from the diseased brain, nerves, sympathetic or hypophysis; or a chemical product irritating to the tissues, and derived from some disease of the large glandular organs of the abdomen; or, finally, a sending out by the persistent and enlarged thymus of tissue elements endowed with unusually great plastic energy. Erb discusses all of these hypotheses in detail, but concludes that

none of them is satisfactory, and that the etiology of the disease is still completely in the dark.

As little is to be said of the therapy. Alterative drugs would seem to be indicated in the early stages, but tonic treatment will as often be called for, on account of the initial weakness and nervousness. In more advanced cases that medicine must be chosen which seems best to suit the individual case, and more than this cannot be said in the present state of our knowledge.

FRIEDREICH'S ATAXIA.

Three cases of this interesting disease are recorded by DR. G. B. SHATTUCK (*Boston Med. and Surg. Journ.*, February 16, 1888), one of them having come under his personal observation. This case, a boy, fourteen years of age, exhibited the first symptoms when eight years old. At this time he began to stumble when walking, and his gait was unsteady. The disease steadily advanced; affection of speech appearing when about twelve years old. Examination showed a well-nourished, intelligent boy exhibiting a markedly ataxic gait, ataxic movements of the hands, slight oscillations of the head, slight tremor of the tongue, and a jerky and ataxic speech. The knee-jerks were absent, plantar reflexes present, sensibility of the legs slightly diminished, and transition a little delayed. There was no atrophy or loss of muscular power, and no nystagmus. Lateral curvature of the spine was present. The parents are healthy, and there is a total absence of a history of nervous disease in the family connection. There were ten children in the family, and of these a brother of the patient, now twenty-four years old, began to exhibit slight unsteadiness in his gait when seven years old, and has now entirely lost the use of his lower limbs. A sister ten years old first complained of weakness, with palpitation of the heart, when five or six years of age; developing an awkward gait at the same time. She has also a curvature of the spine.

ORMEROD (*Brain*, January, 1888, p. 461) reports several cases additional to those he published a few years ago. One of these is, he admits, a doubtful case, as she presented, at the time of examination, but few evidences of Friedreich's ataxia, while some of the symptoms—as a spastic condition of the lower limbs, with increased patellar reflex and ankle clonus—contraindicated the existence of the disease. Two other patients were undoubted instances of it. These were children of the one first mentioned, and possessed a history of nervous disease in the antecedents, extending further back than the mother. The first, a man aged twenty-two years, was attacked three years before by the first symptom, an unsteady gait, appearing after some sort of fever. At the last examination he presented decided ataxia of the lower limbs with well-marked Romberg's symptom; no affection of the upper extremities; nystagmus; rather indistinct speech; no affection of sensation except a feeling as of a sponge under the feet, and no atrophy or paralysis. In the second case, the sister of the last, aged twenty-nine years, the affection of the legs dates from the age of five years, and increased greatly after scarlet fever at seventeen years; at which time the hands and speech also became involved. At the last examination made there was inability to walk; paralysis of the lower limbs with some atrophy; marked ataxia of the hands; nystagmus; slow, drawling, indistinct speech; no patellar reflex; no disturbances of sensation. There

was also a peculiar expressionless appearance of the face. The patient has severe attacks of vomiting at times, as well as certain other sensations which she describes as "choking attacks." In a third patient, a female, though there was no other case in the family, and no history of nervous disease, the father was a drunkard. The first symptoms developed at about the age of sixteen or seventeen years, resembling chorea in some respects. When last examined she exhibited marked ataxia of the legs, inability to walk except when supported; Romberg's phenomenon, some deformity of the left foot, bluish congestion of the feet, ataxia of the hands, possibly some nystagmus, very slight affection of speech. There was no atrophy, no affection of sensation, no knee-jerk. In discussing the subject, Ormerod lays great stress on the influence of heredity in the broad sense of "family proclivity," though he refers to some cases in which direct similar heredity existed. He is, moreover, inclined to believe that intemperance in the parents or more remote ancestors is a predisposing cause, yet he admits the force of the objections against it. Acute febrile diseases also appear to play an important part in some cases. Deformity of the feet is quite frequently observed in the disease.

JOFFROY, in the *Bulletin Médical* of February 26, 1888, reports the latest case of which we have heard. The patient was a boy, aged nineteen. There is no antecedent history of nervous disease in the family. The father died of tuberculosis, and the mother probably of the same malady. One child, a sister, exhibited symptoms of Friedreich's ataxia at twenty-two years of age; the disease lasting fourteen years, and the subject finally dying of tuberculosis. The patient himself showed the first evidences of the affection in the legs at the age of ten years, and at fourteen had an incoördinate gait, with frequent falls. At fifteen years the upper limbs were involved, and affection of speech and scoliosis developed. When examined at nineteen years of age, he exhibited a gait like that of a drunken man; impossibility of walking in the dark; Romberg's symptom; exaggerated plantar, but abolished patellar reflexes. The cutaneous sensibility and the muscle sense of the lower extremities were unaffected. There was a tendency to talipes equinus, and to contraction of the extensors of the toes. The upper extremities were somewhat ataxic, and this was increased by excitement. There was a scoliosis to the right in the dorsal region. The right arm was decidedly weak and the muscles somewhat soft, while the electrical contractility was diminished. The speech was slow and drawling; there was partial paralysis of several of the muscles of the face, including the elevators of the eyelid. There was no alteration in the eye-ground, though the visual fields were somewhat contracted. The head did not oscillate; the intellect was unaffected. The author then discusses briefly the disease in general, and points out its points of likeness to and difference from locomotor ataxia and disseminated sclerosis. A good, though not complete, bibliography is appended.

ACUTE ASCENDING PARALYSIS.

FÉRÉ (*La Semaine Médicale*, 1888, p. 73) reports a case of this disease in a man of forty-one years, of good family history, and in whom there was no discoverable cause, unless it be that he had for some months been very laboriously occupied. He was attacked by extreme weakness in the four

limbs, without alteration of the cutaneous sensibility or of the muscle sense, and without pain. The pulse was 130, and on the next day became 200, while the temperature did not exceed 38° C. [100.2° F.]. The paralysis progressed rapidly, and caused complete abolition of all voluntary movements, with absence of the patellar reflex. Deglutition and micturition were not affected. An electrical examination showed that the faradic contractility of the muscles of the limbs and trunk was totally lost. Death occurred from suffocation six days after the onset of the disease.

THE TREATMENT OF SLEEPLESSNESS.

ECCLES (*Practitioner*, March, 1888) describes the various methods which he has employed during the past two years to produce sleep. Massage is a very valuable means of treatment to restore the *habit* of sleeping; but the object of this paper is to describe, outside of narcotics, the means used to produce an immediate effect. These means have been long and familiarly known, but their respective applicability to different disorders of sleep does not seem to be so well understood; and it is true that those which are adapted to one class of cases, may be useless or even harmful to another class. Patients who "constantly dream" and have but restless unrefreshing sleep, are often treated in various ways in the effort to overcome the partial functional activity of the brain. The best treatment is probably a hot bath taken immediately before the individual wishes to settle quietly for the night. To make it successful it is necessary that even the petty details be attended to. The room should be of a temperature of not less than 65° F., and the patient should be stripped and the head then douched with water at 100° F.; this chilling of the surface and heating of the head filling the brain with blood. The whole body of the patient, excepting the head, is then immersed in a bath of 105° to 110° F. for eight to fifteen minutes; then wrapped in blankets, taken to the bedroom, dressed in night clothes and put to bed with a hot bottle to the feet and the head well raised. In this way the *whole of the brain* undergoes a reduction of blood supply, and dreaming is prevented. The contra-indications to the hot bath are extreme emaciation or anæmia, atheroma, and aortic valvular disease. In these conditions a stimulant rather than a depressant to the nervous system is required, and Brunton has, therefore, recommended strychnia as a hypnotic.

Where there is organic heart disease or functional weakness of the heart and circulation, general corporeal massage at night will frequently produce sleep, particularly if precautions be taken that the surface of the body be not chilled. In certain other cases of insomnia depending on an overwrought and enfeebled nervous system there is hyperæsthesia, and vigorous kneading cannot be employed with benefit. In these instances general stroking of the back and limbs must be substituted; or gentle kneading of the abdomen, followed by a hot abdominal compress. This compress consists of two bandages four yards long, and one and a half yards wide; heated dry in a hot oven, and brought to the bedside in a covered jar. The end of one of them is dipped in water for as much of it as is necessary to cover the abdomen, applied to the surface, and the rest of the bandages wound around this. In still other cases of insomnia from prolonged overwork, mental distress, the morphia

or chloral habit, etc., a condition appears in which massage of any sort applied in the evening must be omitted, since it only tends to increase the nervous excitement. Prompt action is necessary, yet drugs are useless. Under these circumstances there is no agent so useful as the wet pack carefully administered. The patient should remain in it twenty minutes to half an hour, and then, on opening the pack, should be quickly clothed in previously warmed night-clothes, and well covered in bed. Where the action of the pack is very rapid and transitory, its coverings should be sooner and more gradually removed, and the patient not allowed to become too warm in it.

By some one of these methods, followed by recumbent rest in bed, and absolute quiet, sleep may almost invariably be produced. The action is, however, only temporary, and for permanent restoration some other and radical treatment is required. Continued recumbent position in bed in a quiet room, away from social, business, or domestic cares, a carefully modified diet, and massage properly applied will, in the majority of cases, at last be followed by the happiest results.

THE ANATOMY AND PHYSIOLOGY OF STOMATITIS APHTHOSA.

E. FRÄNKEL (*Centralblatt f. klin. Med.*, No. 8, 1888) says that the etiology of aphthæ has been a subject of much discussion. The disease is supposed to be due to the previous formation of vesicles, to the deposition of a fibrillated subepithelial exudate, to a fibrinous exudate in the upper layers of the mucous membrane, and finally, to a necrosis and maceration of the epithelium. It seemed, therefore, best to reinvestigate the subject, and for this purpose the author employed four cases of aphthæ; three of which were in adults, one in a child. The ulcers after being excised, hardened, cut and examined microscopically, showed that all those elements were comprised in them which are characteristic of the fibrinous pseudo-membrane, as seen especially in diphtheria; and that we are, therefore, to regard the process as pseudo-diphtheritic in the sense of Weigert.

In this pseudo-membrane are found epithelial cells with the evidences of coagulation-necrosis, numerous leucocytes, and fibrin. It is formed at the expense of the dead epithelial cells and lies upon the true mucous membrane, and it is on this account that no cicatrix develops. Regarding the etiology of the affection, bacteriological investigation carried out in different ways shows that there are micrococci in the aphthous foci, consisting solely of the *staphylococcus pyogenes citreus*, or of *staphylococcus pyogenes flavus*. It seems probable that these microorganisms are the true cause of the morbid process, by their invasion and destruction of the epithelium. Other factors, such as dentition, gastric disturbances, acute exanthemata, etc., are only predisposing causes.

DICROTISM OF THE PULSE IN INSUFFICIENCY OF THE AORTIC VALVES.

GEIGEL (*Deutsch. Arch.*, Bd. 42 Heft 4, 391) reports an interesting case which shows that the presence of dicrotism in a compound valvular lesion is no proof that the aortic valves are not affected. The patient when first examined exhibited typical signs of pure aortic insufficiency, and her sphygmographic pulse-tracing was that characteristic of this affection. Later a

fresh endocarditis developed, and then the signs of mitral regurgitation. A new tracing now revealed the presence of distinct diastolic murmur. The author explains this in the following manner: In simple aortic insufficiency the contraction of the arteries drives the blood back into the empty, dilated, and yielding left ventricle, and there is consequently no secondary pulse wave, or, at most, only a suggestion of one. If now the mitral valve becomes insufficient, the left ventricle drives a considerable portion of its blood during the systole into the auricle. The greatly distended and over-filled auricle then returns this at the very beginning of the diastole into the ventricle, and the ventricle, now on its part fully distended, offers a resistance to the mass of blood tending to regurgitate from the aorta. The secondary pulse-wave is, therefore, again produced, just as though the aortic valves were sound. It was interesting to note in the case reported that the endocarditis appeared later to heal, while the systolic murmur and the accentuated pulmonary second sound disappeared. A pulse tracing taken at this time showed the absence of diastolic murmur as when first examined.

PHYSIOLOGICAL VARIATIONS IN THE SHAPE AND POSITION OF THE LIVER.

SYMINGTON (*Edinb. Med. Journ.*, February, 1888) pursued a careful investigation of this subject by making frozen sections; and after a full discussion of it, illustrated by plates, draws the following conclusions:

Distention of the stomach causes certain definite alterations in the shape and position of the liver. The movement of the organ is a complicated one; but may be roughly described as a rotation around a vertical axis passing through the inferior vena cava. The left lobe and the anterior part of the right lobe undergo the greatest displacement. The suspensory ligament is relaxed and thrown into folds when the stomach is empty, but when it becomes filled, the liver glides to the right, and the ligament is made tense, and thus checks excessive motion of the organ. The round ligament and the left lateral ligament assist in confining the movements of the liver within a certain range. The vena cava and the Spigelian lobe are moved but little, if at all. It is probable that the gliding of the anterior surface of the liver toward the right side is associated with a corresponding backward movement of the right surface. Whether the stomach be empty or full, the liver always retains its general form, which is that of a triangular prism. The transverse diameter is, however, considerably diminished, and the vertical extent on the right side increased by any distention of the stomach. This increase in a vertical direction is the natural result of the compression of a plastic mass like the liver between a distended stomach and the right lateral wall of the abdomen.

ON THE OCCURRENCE OF RHABDITIDES IN THE URINE IN HÆMATURIA.

Scheiber-Stuhlweissenburg has described a microscopical round-worm—*rhabditis genitalis*—found in the urine of a woman, and seeming to come from the genitals, and not from the urinary tract; and Baginski last year reported a case of paroxysmal hæmoglobinuria in a child of three and a half years, in which the urine contained a peculiar worm, which Virchow stated was this *rhabditis* form of nematode. He was of the opinion that there was

an etiological connection between the attacks of hæmoglobinuria and the presence of the worm.

PEIPER and WESTPHAL (*Centralblatt f. klin. Med.*, No. 8, 1888) describe another case of the same nature. A boy of nine and a half years, rather weakly, had had nocturnal enuresis frequently for two years. One month previously he had suffered from pleurisy; then suddenly developed a severe hæmaturia, a month later a second attack of hæmaturia developed, and three days after its onset an examination of the urine revealed the rhabditides, in addition to red and white blood cells and blood casts. The parasite much resembles the trichinæ, though smaller, but careful investigation showed it to be rhabditis. Examination of the blood, feces, and preputial secretion revealed neither parasites nor eggs. Although admitting the possibility of a connection between the occurrence of the parasite and the hæmaturia, the authors do not venture to assert it, and state that further researches must be made before this can be determined.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

SURGEON TO THE PHILADELPHIA AND GERMAN HOSPITALS; CLINICAL PROFESSOR OF GENITO-URINARY SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

STERILIZED DRESSINGS.

DR. SCHLANGE describes at some length (*Archiv für klinische Chirurgie*, vol. xxxvi., 1888) a series of experiments which led him to the conclusion first, that ordinary dressings thought to be aseptic are not so, but contain various species of germs, and next that the antiseptic action of many, if not all of these dressings, believed to result from the liberation in the wound secretions of the material with which they are impregnated, is no less unreliable. The majority of his experiments were made with sublimate dressings and appeared to show that when freely mixed with blood or albuminous fluids much of the antiseptic action was lost. There are, of course, certain methods by which dressing materials can be rendered absolutely free from bacteria; soaking in boiling water or in a sufficiently strong sublimate solution will effect this at once, and if we apply over a wound materials taken directly from boiling water or from the sublimate solution, and still wet, we may be sure we have put on a truly "aseptic" dressing. The disadvantages of the wet dressings are numerous, however; among them being the interference with the evaporation of the wound secretions and the tendency to produce eczema, and they should be reserved for special cases.

For routine employment we must depend on dry dressings. If, however, the wet sublimate gauze is taken, the layers separated from each other, hung up to dry, cut into the required sizes, rolled, etc., in every case infectious germs

may be found afterward. For these reasons, in von Bergmann's clinic, impregnation of the gauze with sublimate has been discarded and dependence is placed entirely upon gauze sterilized by steam. The raw material, cut of proper sizes and lengths, is put in a wire basket, exposed to superheated steam in an oven for an hour, then removed, and, after drying for a minute, the basket, with its untouched contents, is put in an iron cylinder from which the gauze is withdrawn as required. This secures, with the minimum of handling, an absolutely germ-free material under which wounds do admirably.

Schlange thinks that the excellent results formerly ascribed to the antiseptic action of sublimate are really due to an entirely different cause—the speedy and undisturbed evaporation of the wound secretions. By another series of experiments he has shown that interference with the evaporation of these secretions and the development of germs are intimately associated, and that the latter disappear when the “drying out” process is complete. While decomposition of the blood or discharges in a sterilized aseptic dressing is only possible through the action of germs alighting on its surface, it does not follow that such a dressing should be changed merely because the day after an operation the superficial layers become blood-stained. If by attention to the patient's position, etc., evaporation is favored no risk is ordinarily run. If, on the contrary, there is great soaking of the dressings the superficial layers should be changed, but the deeper layers if they have begun to dry out should be left undisturbed.

E. LAPLACE (*Centralblatt für Chirurgie*, Feb. 18, 1888) examined a number of dressings containing two and a half, three, and four per cent. of sublimate, to determine whether or not they were aseptic. In 300 specimens of wood-wool only seven were not sterile, and all of 100 specimens of sublimate gauze were free from germs. He then investigated the antiseptic action of the same dressings, concluding that not only these but many others were unreliable, and that the good effects following their employment were largely due to the fact that they were aseptic when applied. His experiments showed that the germicidal action of the sublimate solution was satisfactory with non-albuminous fluids or discharges, but with albuminous fluids, like blood serum, there was a precipitate of albuminate of mercury which left the solution inert. A mixture of equal parts of 1:1000 sublimate solution and 5:1000 solution of hydrochloric or tartaric acid prevented this result, and decomposing human blood, which was unaffected by the ordinary sublimate solutions, became absolutely sterile when treated with this mixture. He then tried it on a number of clinical cases with equally good results, arriving, finally, at the following conclusions: 1. We possess in the tartaric acid sublimate mixture a thoroughly satisfactory material for the disinfection of wounds. In order to obtain its good results infected wounds must be washed daily for at least from ten to twenty minutes. In the treatment of fresh wounds a single washing and irrigation suffices. The solution for irrigation should consist of sublimate 1 part, tartaric acid 5 parts, distilled water 1000 parts; for impregnating the gauze, sublimate 5 parts, tartaric acid 20 parts, distilled water 1000 parts. 2. The sublimate dissolves more easily in the acid solution than in water, and the tartaric mixture remains incorporated with the dressings without destroying them. 3. Such dressings are thoroughly

aseptic as well as antiseptic. 4. The dressing and the solution are cheap and easily made and replaced.

A CASE OF CEREBRAL CYST.

MR. KENDAL FRANKS reports (*The Dublin Journal of Medical Sciences*, February, 1888) the case of a lady, aged forty years, whose symptoms may be summarized as follows: Early in June, 1887, an epileptiform attack; recurrences of convulsions at intervals of a few days, gradually growing less intense until about the middle of July, when they were only very mild attacks of *petit mal*; 2d, a form of amnesic aphasia, appearing immediately after the first convulsion, and becoming much intensified after each subsequent fit; 3d, headache over the top of the head, corresponding to the coronal suture, and worse on the left than on the right side, coming on in violent exacerbations, increased by movements, and making it impossible to lie on the left side; 4th, cerebral vomiting; 5th, paralysis of the bladder; 6th, slight paralysis of the right internal rectus muscle; 7th, partial paralysis of the right orbicularis; 8th, paralysis of the left palate; 9th, coma, and finally death, on October 5th. The pulse throughout was variable, generally slow. The diagnosis of cerebral tumor was easy at an early stage, but its localization was difficult. There was no well-defined motor area apparently involved; no paralysis of extremities, and that of the bladder disappeared for a period of ten days shortly after it first came on. The paresis of the rectus (so slight that it was only evidenced by diplopia), and that of the orbicularis and the soft palate could lead to no definite conclusion. The aphasia was amnesic and incomplete, and could easily have been accounted for by communicated pressure. At the autopsy a large cyst cavity, measuring two inches in antero-posterior diameter, was found in the left temporo-sphenoidal lobe. The cyst was separated from the surface by a thin layer of healthy brain tissues. It was filled with clear serous fluid.

ŒSOPHAGOTOMY FOR REMOVAL OF A FOREIGN BODY.

DR. W. C. FREW reports (*The Annals of Surgery*, March, 1888) a case in which a piece of glass about an inch in diameter was swallowed accidentally and became impacted in the œsophagus about an inch above the sternum. Œsophagotomy was performed, and the glass removed. The patient had two recurrent hemorrhages, the last of which left him very anæmic and weak. Transfusion was then performed, twenty-four ounces of warm water containing seventy-five grains of chloride of sodium, thirty-seven and one-half grains of carbonate of sodium, and three grains of phosphate of sodium being injected into the radial vein by means of an aspirator needle, a rubber tube, and a funnel. The beneficial effect was marked and immediate. The patient made a good recovery.

WOUND OF THE LEFT VENTRICLE.

A. P. KIAWKOFF reports (*Russkaja Medizina*, No. 42) the case of a Cossack who received a dagger-thrust in the left breast. He was seen immediately afterward and was found unconscious with stertorous breathing. There was a wound one and a half inches in length in the fourth intercostal space and

in the mammary line. Free hemorrhage was taking place. The wound was cleaned, pressure applied, and restoratives administered. The following day he was conscious; pulse 90, but small; temperature 99.5° F.; cardiac percussion dulness much increased. In four weeks he left the hospital as cured. Five days later he fell dead while attempting to lift a heavy weight. The autopsy showed the skin-wound and that in the parietal layer of the pericardium as entirely healed. The pericardium was filled with dark blood. In the wall of the left ventricle was a small gaping wound a half-inch in length, with thickened edges; there was slight fatty degeneration of the adjoining muscle, and a little subacute endocarditis.

Probably in this case a little forbearance as to physical exertion would have resulted in permanent recovery. The wound had certainly healed, but the cicatrix was still so soft and recent that it could not withstand the unusual blood pressure.

Up to the present date about seven per cent. of the reported cases of wounds of the heart have recovered.

TREATMENT OF WOUNDS OF THE ABDOMINAL VISCERA.

The very important researches of DR. EDLER, of Metz, published in vol. xxxiv. of the *Archiv für klin. Chirurgie*, are abstracted in the *Centralblatt für Chirurgie* of February 18, 1888. The author's conclusions, founded on a series of experimental researches and of collected cases—in all 868—are as follows: Laparotomy is indicated: *a*, for the arrest of hemorrhage by the ligation of large intra-abdominal bloodvessels or by the occlusion of the bleeding organ; *b*, for the removal of serious peritoneal exudations; *c*, for the opening of intraperitoneal collections of pus, or of abscesses in the viscera themselves; *d*, for the extirpation of any of the abdominal viscera.

As to wounds of special organs he concludes:

1. In wounds of the liver jaundice occurs in 20 per cent., pain under the shoulder of the right side is often marked; wounds of the convex surface are more favorable than those of the concave surface, and, with the exception of those penetrating the liver substance, they are all less dangerous than was formerly supposed. The mortality of injuries of the liver of all sorts was about 66 per cent.

2. Injuries of the gall-bladder are by no means absolutely fatal, 25.8 per cent. of the cases resulting in complete cure. Such wounds necessitate neither suturing nor cholo-cystectomy.

3. Injuries of the spleen were fatal in 70.6 per cent. of the cases. Stab wounds run a more favorable course here than the wounds mentioned above. The spleen should be removed when after subcutaneous lesions dangerous bleeding occurs, when after open wounds large vessels continue to bleed in spite of the tampon, when progressive pathological change is going on in a prolapsed spleen, and when suppuration of the organ occurs.

4. Injuries of the pancreas were associated with injuries of other organs. Escape of the pancreatic secretion has never been observed in shot wounds, and only once in stab wounds.

5. Injuries of the kidney vary greatly in their symptoms according to whether they are intra- or extra-peritoneal, but show a total mortality of 47.3

per cent., 16.5 per cent. lower than the average mortality of the whole series of visceral injuries. Extirpation of the kidney he believes to be indicated when bleeding threatens life and when suppuration is excessive, and nephrotomy has failed to give relief, contraindicated in congenital absence of the other kidney, in horseshoe kidney, and when there is a similar injury or sympathetic disease of the other kidney.

REMOVAL OF A PORTION OF THE LIVER.

LANGENBUCH reports (*Berliner klin. Wochen.*, Jan. 16, 1888) the successful removal of a constricted portion of the liver weighing about a pound. Owing to its hinge-like attachment to the body of the gland, and the congestive hyperplasia due to impeded circulation, it was both heavy and movable, causing intolerable distress, especially during the dorsal decubitus. The diagnosis was made by exploratory incision. The attachment was ligated in sections and the constricted portion removed. Symptoms of internal hemorrhage occurring the same evening, the abdominal cavity was reopened, the bleeding checked, the blood removed by sponging, and the wound closed. Healing was prompt, but ascites developed shortly accompanied by some general œdema. The abdomen was twice tapped, and the patient fully recovered without further mishap.

Langenbuch holds this to be the first case in which a large portion of the human liver has been removed by excision.

THE TREATMENT OF FLOATING KIDNEY.

DR. PAUL NIEHAUS reports (*Centralblatt für Chirurgie*, March 24, 1888) a case of floating kidney with all the usual troublesome symptoms present in marked degree. The patient was desirous of extirpation, but it was resolved to try an apparatus resembling a double truss with a vertical arm fastened about the inner third of Poupart's ligament to the horizontal band on the affected side, and carrying a pad which was applied accurately over the region beneath the costal border where the tumor appeared. The apparatus was applied while the patient was recumbent, and was removed only at night when she was in the same position. There was an immediate disappearance of the pain, indigestion, constipation, etc., and the patient was able to do housework with entire comfort. A cut of the apparatus is given.

DR. D. G. WILCOX reports (*Annals of Surgery*, March, 1888) a case of movable kidney in a woman, aged twenty-four, who, while lifting heavily, felt something "give way in her back." She soon after detected an abdominal tumor a little to the right of and on a level with the umbilicus. She had heavy dragging pains and was much disturbed. Nephrorrhaphy was performed in the usual manner, except that the sutures seem to have been placed only in the perirenal fat and external to the capsule. The recovery was uncomplicated and the patient much relieved.

THE RADICAL CURE OF HERNIA.

D. H. PETIT reviews in *L'Union Médicale* of March 17, 1888, the discussion on the above subject, which took place at the last meeting of the French

Surgical Congress. Many distinguished French surgeons took part, M. Socin, of Bâle, reading the opening paper. His conclusions, and the comments thereupon, may be summarized as follows:

1. The radical cure of inguinal or femoral hernia by operative treatment is possible. MM. Trélat and Legond suggested "surgical" or "operative" cure instead of "radical," on account of the frequency of return.

2. The operation is the necessary complement of all kelotomies done for strangulation, excepting only the cases in which the intestine cannot or should not be reduced. This was concurred in by all.

3. The radical cure of non-strangulated hernia is indicated: *a.* In young subjects of both sexes (under twenty years) when the classical treatment—by truss—does not succeed in completely and absolutely holding up the hernia. *b.* In adults when the truss does not act in a similar manner. M. Socin thinks that before the age of twenty years hernia should be considered as practically congenital, as, although the hernia may not exist at the moment of birth, the condition of the inguinal and crural canals which favors it does. M. Richelot believes that it would be well to employ the radical cure in congenital hydroceles, which, of course, favor the formation of hernia.

4. The chances of success are better in proportion to the youth of the patient, the smallness of the hernia, and its shortness of duration.

5. The existence of a double hernia, or of frequent hernias in the family, diminishes the chance of success, in the sense that it shows a hernial predisposition which favors relapse, but offers no contraindication to the operation itself.

6. Bodily labor, according to M. Socin, does not tend to produce relapses; but this opinion was not thought to be correct by the majority of the speakers.

7. The employment of a truss after the operation is useless, often harmful. This was concurred in by MM. Lucas-Championnière, Léonté, and Thirias, and objected to by MM. Trélat, Legond, Richelot, and Routier.

8. The operation is without danger in simple cases. There were reported at the congress 239 cases with 2 deaths, one from encephalitis in a confirmed drunkard, the other from pulmonary congestion in an emphysematous patient. In complicated cases we must make two classes, one in which the complication is purely local and relates to the volume of the hernia, its adhesions, etc., and another which includes aged and cachectic subjects, who in this, as in other surgical work, present the largest proportion of failures, and with whom the benefits of the radical cure do not counterbalance its dangers.

9. The operation consists essentially in the total ablation of the sac of the hernia beneath its neck. Suturing of the pillars is only exceptionally necessary.

10. In congenital hernias the dissection of the hernial sac may be difficult, but succeeds in the great majority of cases. The lower portion should be retained in order to preserve a tunica vaginalis for the testicle.

11. In case of orchitis with atrophy of the glandular structure the testicle should be removed with the sac.

THE IMMEDIATE TREATMENT OF RUPTURE OF THE URETHRA.

AXEL IVERSEN (*Nord. Med. Archiv*, vol. xx., 1888), basing his conclusions on twenty-nine cases of ruptured urethra, agrees with Guyon and Terrillon

that rupture of the urethra is frequently only partial; when complete it occurs in the lateral walls or floor of the urethra, and is most frequently situated one-third to one inch anterior to the triangular ligament in the spongy part of the urethra. The exceedingly rare cases of rupture in the membranous part are usually secondary to fractured pelvic bones. The signs of urethral rupture anterior to the triangular ligament are very different from those attendant on rupture of the membranous urethra. In the former there is a rapidly formed circumscribed perineal swelling due to extravasated blood, difficulty in passing urine, or complete retention, and urethrorrhagia. Perineal swelling is the most constant sign of this accident, and reaches its height in an hour.

In rupture of the membranous urethra the blood rarely flows from the meatus, passing backward more readily into the bladder; there is no primary swelling in the perineum. Urinary infiltration occurs almost immediately, the urine making its way in the line of least resistance through the weak pelvic fascia near the pubo-prostatic ligaments, and spreading rapidly through the subperitoneal cellular tissue. Later, suppuration may cause perforation of the peritoneum, or the pus descending by the sides of the rectum may show at the anus. Usually all external swelling is absent, and the above occurrences are to be suspected from the severity of the symptoms.

As to treatment, Iversen urges the exploration of the urethra with a small bougie-à-boule, the lip of which can readily be felt and located through the rectum. The surgeon should be content with leaving a catheter in the bladder only in the slightest cases where there is little or no swelling, and the instrument passes in without much resistance. The same remark applies to treatment by regular catheterization. In the more severe cases an incision must be made, the rent found, and a soft catheter passed through the entire urethra to the bladder. In eight or ten days it can be removed, and the patient allowed to pass his water. In the rare cases where the proximal end of the torn urethra cannot be found, a suprapubic cystotomy should be performed, when by the aid of posterior catheterization the soft instrument can be put *in situ*. If extravasation and abscess have already occurred, a catheter should not be left in the bladder, as sloughing might result.

DR. PAOLI ERASME (*Annales des Maladies des Organes Genito-Uriinaires*, March, 1888) reviews the same subject in a valuable and interesting paper. He believes that in complete rupture of the perineal urethra the indications are as follows: 1st, to open a large passage for the accumulated fluids; 2d, to keep up a free flow of urine; 3d, to encourage rapid union of the two ends of the urethra and the walls of the cavity formed by the extravasation into the perineum; 4th, to prevent the formation of a cicatricial stricture of the urethra. He briefly reviews the different methods which have been recommended: Suprapubic aspiration (Lefort, Molliere) is palliative, and meets none of the indications; external urethrotomy (Guyon and others) does not provide for prompt union of the canal, and does not prevent consecutive contraction. Antiseptic measures carried out by allowing an elastic catheter to remain in the perineal wound, which is tamponed (Hueter, Löbker), or by suturing the borders of the bladder (Lucas-Championnière) produce more rapid union, but are likewise followed by urethral coarctation. The stitching of the proximal end of the urethra into the wound and catheterizing only

after healthy granulations have formed (Kœnig), while reducing risks to the life of the patient, is followed by the same results.

ERASME concludes that immediate union of the two ends of the torn urethra is the result to be aimed at; quotes the results obtained by Kaufmann, of Zurich, in experiments on dogs which were very successful, and details a case of his own in which, after a fall upon a cask, a man, æt. thirty-eight years, had a rupture of the perineal urethra. The two ends, when discovered by dissection, were separated from a third to half an inch. A large English catheter was introduced, and the two ends of the urethra brought well together with catgut stitches inserted so as not to include the mucous membrane. The transverse perineal muscles and the others which were divided were then brought together by sutures, as well as the more superficial tissues. The patient had no fever; almost no urine passed by the wound (not a drop after five days); in about seventeen days the wound was entirely healed; in three weeks a sound went easily into the bladder, no obstruction being felt, and the patient was discharged, to report for future examination.

He prefers this method of suturing to that recommended by Kaufmann, who placed his stitches first in the mucous membrane, tying them in the interior of the canal. He thinks early operations through tissues not yet inflamed or infected far preferable to those performed later, and gives the following statistics of mortality: Early perineal incisions, 8.79 per cent.; hypogastric aspiration, 19.04 per cent.; late perineal incision, 20 per cent.; and hopes that early suturing will show still more favorable results.

HYDROCELE NEONATORUM.

DR. W. WECHSELMANN (*Archiv für klinische Chirurgie*, vol. xxxvi., 1888) after a review of the subject concludes:

1. Congenital hydrocele is much more common than is usually supposed.
2. In newborn children hydroceles communicate with the peritoneal cavity with great frequency.
3. Such hydroceles are most often found on the right side.
4. They are, apparently, of intrauterine origin.

THE TREATMENT OF MAMMARY TUMORS.

MR. JOHN FAGAN, after a general review of the subject and a brief report of some cases, comes to the following conclusions (*The Dublin Journal of Medical Science*, January, 1888): 1. That in many of the very worst forms of advanced, painful, ulcerating scirrhus, where there is no immediate danger of death from marasmus or visceral complications, the part may be removed with great benefit and relief to the patient. 2. That all cases of malignant growths of the breast, as soon as they are diagnosticated, should be removed at once by operation, all accessible parts likely to be infected being taken away. 3. Doubtful cases should be dealt with in the same way. 4. All recurrent growths should be removed at their earliest manifestation. 5. All non-malignant neoplasms, as soon as they show a tendency to enlarge, and especially between the ages of twenty-five and forty years, should be removed without delay.

SUGGESTIONS AS TO THE TECHNIQUE OF AMPUTATION.

DR. OBALINSKI (*Centralblatt für Chirurgie*, No. 51, 1887) comments on the fact that though antiseptic methods have lowered the mortality of these operations from thirty per cent. to three per cent., yet ulcerative perforation of the soft parts by the sharp edge of the tibia is of frequent occurrence. He has devised a method which he recommends as simple, and as having been successful in thirty-eight leg amputations and twenty-two amputations in other parts of the body. Two lateral and equal musculo-tegumentary U-shaped flaps are formed. After section of the bone a row of plate sutures is inserted, the upper one being so placed that the silver wire lies in front of the tibia, the two plates pressing upon the anterior surface of the bone, at least a third of an inch above the sawed edge. The edges of the flaps are then approximated by the ordinary knotted suture. This method of suturing brings the soft parts together so that there is a projection above the sharp tibial edge shaped much like a cock's comb, and the weight of the flaps is no longer supported by a thin layer of skin stretched over a hard, sharp projection. Upon the upper plate sutures there must be considerable tension, but the operator is cautioned against making undue pressure. The resulting stumps were satisfactory, the projections of the soft parts gradually disappearing.

HELFERICH (*Münich med. Woch.*, No. 36), with a similar object in view, cuts a lateral skin flap from the inner surface of the leg, and enforces a lateral decubitus in his patients, by which means the skin is separated from the bone by a thick pad of muscular tissue.

MOSETIG'S plan (*Wiener med. Presse*, No. 45) is to cut two lateral muscular tegumentary flaps, the outer having a much greater circumference than the inner. By suturing from below a portion of the large flap is left projecting anteriorly; this is folded transversely upon itself, and in turn sewed in that position. Thus a duplication of the tissue projects upon the sharp edge of the tibia little likely to yield to the pressure to which it is subject. He has used this method in five cases with satisfactory results.

[The simpler plan of bevelling the edge of the tibia, and of preventing undue pressure afterward by care in the application of the dressings, will in the great majority of cases of leg amputation obviate the need for these clumsy and complicated methods of operation.]

EXTIRPATION OF THE SCAPULA.

CECI reports (*Centralblatt für Chirurgie*, Dec. 17, 1887) a successful case of total extirpation of the scapula, with subsequent regeneration of the bone. The arm was preserved. The patient, a young man, developed an acute osteomyelitis of the left scapula five days after circumcision for inflamed phimosis. One month later Ceci extirpated the bone, making the usual L-flap. The periosteum was left intact as far as possible. The patient recovered rapidly. Ceci has collected 47 cases in which this operation was done. In 45, of which the termination is known, there was a mortality of 20 per cent. He thinks that a favorable prognosis should depend partly on the subperiosteal method of operating. The separation of the periosteum should be begun in the dorsal surface of the bone.

DRAINAGE IN SUPPURATING SYNOVITIS OF THE HAND AND FOREARM.

M. COURTADE (*L'Union Médicale*, No. 35, 1888) reviews the incisions recommended by Gosselin, Dolbeau, Nélaton, and Tillaux, and makes to all of them the common objection that they give imperfect drainage, and by prolonging the case favor the adhesions of the tendons to one another. He proposes the following operation:

1. Make at the level of the anterior border of the ulna, and from one-third to one-half an inch below its inferior extremity, an incision about two inches in length; after having divided the skin and aponeurosis, penetrate with a tunnelled sound or with the finger under the flexor muscles, and in front of the pronator quadratus.

2. On the internal border of the flexor carpi radialis tendon, about one-third of an inch within the radial artery, and a short distance above the fold of skin which marks the upper limit of the thenar and hypothenar eminences, make an incision two inches in length. After the division of the deep fascia the bistoury should be abandoned, and the tunnelled sound passed into the tendinous interspaces until pus is reached. Now pass a drain between the two openings and use washings, or irrigation. The drain, when withdrawn, should be replaced by a thread to facilitate its reposition, if it becomes necessary. Passive movements should be begun early.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,

PROFESSOR OF OTOTOLOGY IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE, ETC.

REPORT OF 5700 CASES OF EAR DISEASE.

DR. S. S. BISHOP, of Chicago (Ninth International Medical Congress), from the statistics of the ear cases treated during the last eight years in the Illinois Charitable Eye and Ear Infirmary, has drawn the following conclusions:

1. Youth is a predisposing cause; more than one-fourth of the whole number of cases were under fifteen years of age.
2. Sex does not exercise any appreciable effect in the disease.
3. About eighty per centum were chronic diseases, and about ninety per centum were diseases of the middle ear.
4. The causes of nasopharyngeal catarrh are the proximate causes of middle ear disease.
5. The nervous temperament was predominant.

ON CLINICAL GROUPS OF DISEASES OF THE EAR.

MR. JONATHAN HUTCHINSON (*Medical Press*, January 11, 1888) proposes that a more clinical classification of ear diseases be made to take the place of the more pathological one now in vogue. He would make two grand divisions, viz., the catarrhal (from the effect of cold in the ear), and the gouty.

The first group is subdivided into four classes, since the influence of cold on the external ear may be productive of several different results:

1. It may cause an attack of erysipelas of the ear.
2. It may cause swelling of the whole of the lining of the cavity of the external ear, with some fluid discharge from the glands, a sort of acute inflammatory scborrhœa.
3. It may cause a local periostitis with the formation of matter. This periostitis may be either limited or diffuse.
4. The inflammation may complicate the membrana tympani, especially at its margin, and thus come to involve the middle ear.

The constitutional treatment, of course, is to be antiphlogistic, with, locally, warmth to the ear.

In regard to the second group, the gouty, Mr. Hutchinson says: "It might be expected that gout would show its power in several different ways. First, we might have attacks of acute gout, in all respects resembling those we meet with in the great toe, occurring in those in whom other conditions demonstrated the existence of the diathesis. These would probably be attended by very severe pain, and would be transitory, with more or less damage to the organ. Different structures of the ear might be attacked. Next, we might encounter chronic and insidious changes in different parts of the ear in connection with the slow deposit of urate of soda. It is certainly a very extraordinary fact if the membrana tympani always escapes this deposit, as it is precisely the structure likely to attract it. This condition would be probably attended with gradually increasing dulness of hearing. A third group of cases might be expected, in which changes analogous to those of rheumatic gout would be found in connection with similar changes in the largest joints of the limbs." Of course, this is purely theoretical, but, nevertheless, suggestive of investigation.

THE WET-CUP, INSTEAD OF THE LEECH, IN CERTAIN ACUTE DISEASES OF THE EAR.

DR. GORHAM BACON, of New York (*Medical Record*, January 7, 1888), suggests the use of the wet-cup, in place of the leech, in acute otitis externa or media, and also in inflammation of the mastoid.

This substitution is made for the following reasons:

"1. Many patients, and especially children, have a great repugnance to having a leech applied to the ear, so that it is extremely difficult in such cases to use them.

"2. The bleeding from a leech-bite is frequently difficult to arrest.

"3. A leech-bite occasionally gives rise to erysipelatous inflammation and ulceration, and not infrequently produces a circumscribed abscess, even in apparently healthy individuals.

"4. Leeches are not always to be had, especially in the country, and are very frequently a troublesome remedy, besides being expensive."

ZAUFAL'S PNEUMOCOCCI IN ACUTE OTITIS MEDIA.

From a letter of DR. H. CHATELLIER to the *Annales des Maladies de l'Oreille* for January, 1888, we learn that in his investigations on the above-named

subject, Prof. Zaufal follows the plan of Koeh in the isolation and examination of the colonies (culture in patches), and employs the different methods for coloring the microbes, in vogue in ordinary bacteriological researches. In the liquid filling the tympanic cavity, in cases of acute otitis media, Zaufal finds exclusively the two forms of microbes found by Friedländer and Fränkel in pneumonia, viz., a large, short bacillus, encapsuled, and a diplococcus also encapsuled. Zaufal claims also to have shown that the exudations in acute otitis media, before rupture of the membrana tympani occurs, contain pneumococci to the exclusion of all other microorganisms, and that these pneumococci introduced in the nasal fossæ can give rise to a pneumococic meningitis without irruption of the cranial envelope.

ON THE EFFECT OF HIGH ATMOSPHERIC PRESSURE ON THE EAR.

DR. SAMUEL SEXTON (*Medical Record*, New York, December 10, 1887) has written an interesting paper on this topic; based chiefly upon the observation of the effects of pressure in submarine caissons, upon the ears of workmen employed therein. Many of the men thus affected become permanently affected in health and hearing. Sometimes there are previous warnings in the form of great pain in the ears when under pressure in the caisson; soon after this, if the subject perseveres in the endeavor to work in the caisson, greater pains set in, with inflammation and suppuration of the ear. Five cases are reported by Dr. Sexton, occurring in individuals more or less run down in health, and intemperate in drink. It is suggested that were none but healthy persons employed, or those with perfectly healthy ears, and free from gross catarrhal diseases with nasopharynx and Eustachian tubes, ear disease among the caisson workmen would be less frequent. The presence or absence of these forms of predisposing disease could be found out only by expert examination.

RELATION OF ADENOID GROWTHS IN THE NASOPHARYNX TO THE PRODUCTION OF MIDDLE EAR DISEASE IN CHILDREN.

DR. CLARENCE J. BLAKE, of Boston (*Boston Med. and Surgical Journal*, March, 1888), calls attention to the important train of symptoms which come from the presence of adenoid growths in the nasopharynx of children. They are such as would result from interference with the normal ventilation and nutrition of the middle ear tract, and are more or less permanent, according to the duration and size of the adenoid growths.

In the earlier stages, when the growth is small, the ear is noticeably affected only when, in addition to the bulk of the growth in the nasopharynx, there is added swelling of the mucous membrane of the region in a head cold. As the growth increases, a less swelling occasions now comparatively greater disturbance, and the intervals of freedom from impaired hearing, nocturnal earache, and subjective noises in the ear, become shorter and rarer. In the meantime, changes are taking place in the structure of the middle ear, which are more or less permanent. The membrana tympani is retracted, the tendon of the tensor tympani is relaxed, the mucous lining is thickened, the ossicles become more or less ankylosed, the nutrition of the middle ear is lowered, and ulceration and suppuration are easily set up.

The aural symptoms in such cases may be divided into three classes. *First*, those in the earlier stages, with some earache and impaired hearing, with a cold in the head. These are always improved—*i. e.*, cured under proper treatment of nares and middle ear. The *second* class are the more advanced cases of the above, due to neglect. The hearing is greatly and persistently impaired, and the child regarded as a mute or an idiot. In many of these cases the air douche failing, it has been found that catheterization of the Eustachian tube has decidedly and immediately improved the hearing, and entirely changed the objective symptoms in the ear, the membrana tympani, previously dull in color and in lustre, returning to the normal appearance in a greater or less degree in both respects. To the *third* class belong those cases already alluded to, in which suppurative otitis media is a result of the disease in the nasopharynx, set up at last by some local exciting cause. These cases can be cured only after the adenoid growths are removed.

POLYPI IN THE MIDDLE EAR, SHOWING BAD EFFECTS OF THEIR PRESSURE.

DR. CLARENCE J. BLAKE, of Boston (*Annales des Maladies de l'Oreille*, January, 1888), reports two cases in which a tumor (polyp) between the external wall of the drum cavity (the membrane) and the incus, extended downward and backward, so as to press upon the body and long process of the anvil, thus exercising pressure upon the labyrinth, through the oval window. In the first case, the polyp was so placed as to press upon the facial canal and nerve and produced facial paralysis. In the second case pressure of the tumor upon the incus, the stapes, and the labyrinth was sufficient to maintain an irritation in the semicircular canals, and produce vertigo, tinnitus, and augmentation of intralabyrinthine circulation. In both cases entire relief followed removal of the polypi.

ON THE DETERMINATION OF IMPORTANT TOPOGRAPHICAL RELATIONS IN THE TEMPORAL BONE FROM THE FORM OF THE SKULL.

DR. OTTO KOERNER, of Frankfort-on-the-Main (*Archives of Otolaryngology*, Dec. 1887), has attempted to answer the question: "Is there any way in which we can foretell whether any given temporal bone is, or is not likely to be dangerous for operation on account of the position of the lateral sinus?"

The answer depends upon a consideration, whether the exact situation of the floor of the middle cranial fossa and the course of the transverse sinus in the temporal bone, in any way depend upon the form of the skull. He examined one hundred and twenty temporal bones selected from thirty-eight different races, and twenty-two exclusively German. The result showed "that the floor of the middle cranial fossa in dolicocephalous skulls lies higher above the porus acusticus externus and the spina supra meatum than in brachycephalous skulls." This seems to show that it is desirable in every operation on the mastoid to begin as far forward as possible.

The measurements show that the transverse sinus lies further outward in brachycephalous skulls than in dolicocephalous, and that, independent of the form of the skull, it lies further outward on the right side than on the left. In order to avoid the sinus in operations on the mastoid, the following rule is proposed: "The smaller the index of the skull, the farther forward the open-

ing should be made; if the patient is an adult, with an index of 1.30, or less, we ought to operate, if possible, in front of the auricular attachment, particularly if the right antrum is the one involved."

The sinus in the brachycephalous is more dangerously—*i. e.*, superficially—situated than in the dolicocephalous skull, because the great horizontal blood-vessel of the dura does not generally divide at the torcular Herophili with a right and left sinus, but it continues on as the right sinus, whilst the left receives the lesser blood supply from the vena magna Galeni.

"Under these circumstances then, it would seem as if the pressure of the blood current against the curves of the sinus would, during the growth of the bone, burrow for itself the deepest at the spot against which it was propelled with the greatest force, which apparently occurs on the right side in brachycephalous skulls, because in them the posterior cranial fossa being broad and narrow, the sinus alongside will be more sharply curved than in the longer and narrower fossa of the dolicocephalous skull."

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

HYDROGEN PEROXIDE IN DIPHThERIA.

DR. MARCUS P. HATFIELD, of Chicago, extols (*The Archives of Pediatrics*, February, 1888, p. 102) the topical efficacy of the ordinary solution of hydrogen peroxide in diphtheria above every other antiseptic. It is applied directly with a swab, or in spray (two ounces of the solution diluted with seven times its bulk of water). Diphtheritic throats treated thus every two hours, did not become, even in the worst of eighteen cases under observation, putrid and offensive. Hydrogen peroxide does not act as a solvent of the membranes, nor prevent their formation, but acts rather as their disinfectant and as their antidote, neutralizing the poison of the diphtheritic exudate.

BLENNORRHOEA OF THE LARYNX.

DR. KRAKAUER exhibited a patient (*Deutsche med. Woch.*, No. 49, Dec. 8, 1887) with Störk's blennorrhœa, in the person of a thirty-six years old female who had never been sick.

There was no evidence of tuberculosis or syphilis. Repeated temporary attacks of hoarseness had occurred of late years. An attack three weeks before gradually led to the following conditions: Grayish-brown crusts beneath the vocal bands parallel to their free borders and somewhat projecting beyond them, especially extensive toward the anterior commissure, and preventing

proper glottic closure. The calibre of the larynx was much encroached upon, and there was marked dyspnoea and *factor ex ore*. The nasal membrane was nearly normal, save a slight atrophy without any crusts or abnormal secretions. The nasopharyngeal space was in a similar condition. The epiglottis and aryepiglottic folds were somewhat reddened. The prognosis was considered grave on account of the liability of the edges of the mucous membrane to excoriation from the crusts, and the consequent disposition to adhesions.

UNILATERAL LARYNGECTOMY.

DR. WOLFENDEN completes (*Journal of Laryngology and Rhinology*, January, 1888) his articles on laryngectomy (see *Amer. Journ. Med. Sciences*, 1887) with tables of unilateral exsection, as follows: 28 cases for carcinoma, 2 for sarcoma, and 10 for other conditions, principally stenosis, perichondritis, and enchondroma. He summed up the following conclusions:

"From the tables it is seen that out of 29 cases of unilateral extirpation for carcinoma, 4 may be said to have died from the effects of the operation, and in 7 recurrence is noted. Ten were reported living at the end of a year after the operation. The results, so far as they go, are much better in sarcoma, but it must also be remembered that sarcoma of the larynx has been cured by endolaryngeal methods, just as carcinoma has. About thirty-five per cent. may be taken as the average percentage of successes, and the operation, therefore, shows results at least three times as favorable as that of total ablation, and may in the future show a still better average. Allowing for the fallacious nature of statistics, and for the fact that it has not been possible to trace some of these cases, and for possible error in others, the general deductions from tables such as these must be decidedly adverse to the maintenance of total ablation as a practical surgical procedure, but will direct attention to the perfection of the methods of operating by, and knowledge of, the indications for the operation of partial excision of the larynx in malignant disease. The records of cases cured by endolaryngeal procedures will also cause us to hesitate before advising severe measures, especially in cases where diagnosis admits of any doubt.

"While it is impossible to draw as yet any exact conclusions with regard to the operation, it is evident that so far as regards recurrence of this disease, it is not more frequent after partial than after total extirpation; and while after the former operation some (and in many cases a very good) voice is preserved to the patient, the general condition is one of comfort, compared with that of the individual who has submitted to total extirpation of the larynx. While we have statistics enough to show the terrible nature of this latter operation, and the appalling uniformity of results, partial extirpation stands in a much more favorable light, and though the operation is young compared with that of total ablation, it has so far given results which render it much more acceptable as a surgical procedure. Many surgeons, indeed, consider total ablation no longer a justifiable operation. Partial extirpation, on the contrary, is an operation the practice of which promises in the future much success, but even this should not be undertaken unless it is proved to be no longer possible to eradicate the disease by endolaryngeal methods. That this, however, is possible has been clinically proved."

TUMOR (SARCOMA) OF THE TRACHEA.

ZEMANN demonstrated (K. K. Gesell. d. Aerzte in Wien, *Deutsche med. Woch.*, January 12, 1888, p. 36) a tumor of the posterior wall of the trachea of the size of a walnut. The patient died October 25, 1887. In 1867 and 1869 he had been operated upon by Schrötter. Death was due to broncho-blennorrhœa. Microscopic examination showed the tumor to be a sarcoma which appeared to be strewn with very wide vessel spaces. Such tracheal tumors are rare. A case has been reported by Mayer-Hunny, and another by Schrötter.

In 1867 Schrötter saw this case. A tumor was seen in the right posterior wall of the trachea, moving with inspiration and expiration, and so nearly filling the calibre of the trachea that the mucus on the anterior surface of the tumor smeared the anterior wall of the trachea; and yet the patient could endure a certain amount of physical exertion. He removed about two-thirds of its anterior portion with a guarded Aluseux's forceps intralaryngeally. The remnant bled freely. It was injected with iron sesquichloride and shrunk considerably, an eschar having immediately followed the injection. Patient remained well until 1869, when recurrence took place, the tumor being firmly seated in the posterior wall and not moving with the respiratory current. In 1870 the recurrent tumor was removed intralaryngeally. In 1879 a second recurrence was observed. The patient declined an external operation. He was not much incommoded by the growth and was contented with his condition. His breathing became better, and this was attributed to a downward deflection of the anterior portion of the tumor so that the air passed between this portion and the anterior tracheal wall.

TRACHEO-BRONCHIC ADENOPATHY IN TYPHOID FEVER.

A case of typhoid fever in DR. HANOT's hospital service is detailed (*Arch. gén. de Méd.*, February, 1888, p. 230), which was characterized by marked dyspnœa. At the autopsy a mass of hypertrophied tracheo-bronchial glands nearly the volume of a fist was found at the posterior surface of the trachea and principally on a level with the bifurcation. The largest glands had the volume of a small nut.

Commencing at the upper rings of the trachea the mass of glands covered its entire posterior surface and followed along the bronchi quite to the interior of the pulmonary parenchyma. They were more abundant and more voluminous along the left bronchus than along the right one. The left lung was compressed against the vertebral column in a state of atelectasis. The right lung was healthy and presented only a little congestion at its base.

EXTIRPATION OF GOITRE BY OPERATION IN TWO STAGES.

DR. JUL. WOLFF exhibited a patient to the Berliner Medicinische Gesellschaft (*Deutsche med. Woch.*, No. 49, Dec. 8, 1887) from whom, on a previous instance, he had removed a goitre in two sittings. Although the tumor was small, the dyspnœa was so great that the operation was performed with the patient in the sitting posture. At the first operation the isthmus was removed, and the right side of the trachea laid bare. After careful restraint

of the hemorrhage by methodic compression, a plan employed by the operator in twenty-one previous cases, the wound was filled with iodoformed gauze. Two days later the operation was completed. In both his cases the second operation was performed with very little danger, and with very little loss of blood, so that the operator commends this method in similar instances.

NASAL STENOSIS AND PULMONARY DISTENTION.

DR. G. SANDMANN, of Berlin (*Berliner klin. Woch.*, Jan. 9, 1888) expresses his belief in nasal stenosis of various origin, as a cause not only of ordinary distention of the pulmonary alveoli, the false emphysema of Cohnheim, but likewise in the ultimate production of true pulmonary emphysema characterized by atrophic disappearance of the walls of the alveoli, due, according to his opinion, to disturbances in the circulation produced in the first place by the simple alveolar distention.

In the same journal a week previous, in a lecture on pulmonary emphysema, PROF. VIRCHOW took exception to these very views, and stated that not only were cases of nasal, laryngeal, and bronchial stenosis rarely associated with emphysema, but that the pronounced emphysematic patient has not, as a rule, any material constriction in any of these large aerial conduits.

ANTIPYRIN IN EPISTAXIS.

M. HÉNOQUE (*La Semaine médicale*, Jan. 11, 1888) extols the topical use of a solution of antipyrin (twenty per cent.) by insufflation or by injection in epistaxis. He believes that antipyrin causes constriction of the vessels, and at the same time causes coagulation of the blood.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA.

A COMPARISON BETWEEN CRANIOTOMY, INDUCED LABOR, AND CÆSAREAN SECTION.

WYDER, of the Charité at Berlin, contributes to the *Archiv für Gynäkologie*, Band 32, Heft 1, a comparison between these three methods of treatment, which is a most rational plea for due conservatism in assigning a place to the improved Cæsarean section—Sänger's operation.

Wyder considers the statement of Credé, that craniotomy on the living child should be superseded by Cæsarean section, as premature, although he admits that under favorable circumstances this is to be expected not far in the future. He quotes the statistics of the policlinics at Berlin and Leipzig, and the Halle clinic, aggregating 215 craniotomies, with a mortality of 5.6 per cent.; the Berlin clinic had a mortality in craniotomies of 13.2 per cent.

Regarding the mortality in different grades of contracted pelves, he states that in pelves whose true conjugate was three and a half inches and more, the mortality was fifteen per cent.; with a conjugate between two and three-quarters inches and three and a half inches, mortality ten per cent.; true conjugate between two and one-eighth inches and two and three-quarters inches, mortality nil. It is in the last class of cases that the Cæsarean section is generally performed. The complications following craniotomy were most frequently caused by efforts at delivery with forceps before craniotomy was done.

Regarding the induction of labor, 306 cases are cited, mortality 3.9 per cent.; and here, also, the cases in which the pelvic contracture was of the highest degree were without mortality.

In comparing these results with those of Säger's operation, the first fifty cases reported by Säger are taken; these statistics are criticised, and thought to be collated with an optimistic view of Cæsarean section. Wyder's comparison shows that in contracted pelves the mortality from Säger's operation is 2.13 times greater than that in craniotomy, and 3.37 times greater than the mortality of induced labor. For "relative indications" (not highly contracted pelves) the mortality of Cæsarean section was 7.1 times greater than that of induced labor in highly contracted pelves. Sepsis is the great danger in Cæsarean section, and when it occurs it is to be ascribed to the operation, for the performance of the operation gives the best possible opportunity for septic infection.

In summing up his conclusions, Wyder recognizes the fact that many cases of labor fall into midwives' hands, or those of practitioners not versed in pelvimetry; they are not, therefore, treated in the most favorable period for Cæsarean section. He considers this operation, like ovariectomy and the removal of uterine myomata, a procedure to be undertaken only in well-equipped hospitals, by skilful operators. In estimating the prognosis of any case of contracted pelvis, the size, hardness, possibility of moulding, and position of the head, and all the other conditions essential for spontaneous birth, cannot be estimated as early as the time urged for Cæsarean section; the prognosis depends not only upon the degree of pelvic contraction, but upon those factors also.

Regarding the child's life, we are to guard it so long as the mother is in no danger, but when she is imperilled her interests only should be considered. In applying Credé's "golden rule" for obstetricians, "What would you do if the patient were your wife, your sister, or a near relative?", Wyder believes that few practitioners would not hesitate to perform Cæsarean section when other methods are available.

In forming rules for practice, Cæsarean section is undoubtedly indicated in highly contracted pelves when the patient is found in advanced pregnancy. In the early months of pregnancy the induction of labor is indicated; with antiseptic precautions it is without danger. In contracted pelves of conjugate verae, two and one-eighth inches to two and three-quarters inches, Cæsarean section and craniotomy are direct rivals; the maternal mortality of the fifty cases of Säger's operation, Wyder estimates at 17.9 per cent.; and he believes that when this mortality shall be reduced to that of craniotomy, in hospitals and localities where Cæsarean section can be readily performed, craniotomy

should yield to the Cæsarean section of Säger. He believes that Cæsarean section will be rarely done in pelvis but slightly contracted, and most rarely in primiparæ.

Wyder closes with the reiteration of the cardinal points of his paper, and urges the restriction of Säger's operation to skilled hands and proper hospitals, and that the mother's life should have unquestioned and paramount supremacy.

[The material from whose study Wyder draws his conclusions was 9000 cases of labor at the Charité at Berlin, and 6000 at the Policlinic Service, material ample enough and favorably situated; he compares the results obtained in Berlin with those of other cities, finding a substantial agreement.

In view of the success which attends the revival of Cæsarean section in the United States (see *The Medical News*, March 31, 1888, p. 349), a conservative discussion of these procedures is timely and valuable. Such comparative study will assign to Säger's operation its true place, define clearly the indications for its performance, and improve the results of the operation.—ED.]

CÆSAREAN SECTION IN A CASE OF UNCONTRACTED PELVIS.

GUSTAVE BRAUN reported, at a recent meeting of the Society of Physicians of Vienna, a case which he stated to be the first case of Cæsarean section for what is termed a "relative indication." The indication for performing the operation was the fact that there were no grounds for hoping for a favorable termination of labor without Cæsarean section. The patient was a primipara; aged thirty-seven, who was in good health during her pregnancy. The liquor amnii escaped after sudden rupture of the membranes; labor pains continued irregularly for a week without effect, and the patient sought the hospital.

Examination revealed a tetanic condition of the uterus; the vulva was very narrow; the perineum rigid; the lower segment of the uterus was dilated. There was no real contraction of the pelvis; but after observing the patient for nearly twenty-four hours, Braun concluded that the only hope for the child's life, and perhaps the mother's, lay in Cæsarean section. He accordingly performed the operation. Mother and child recovered perfectly.—*Wiener Medizinische Presse*, No. 9, 1888.

INTRA-UTERINE HEMORRHAGE DURING PREGNANCY.

BUDIN is reported by the *Progrès Médical*, Nos. 2 and 3, 1888, in a clinical lecture on this subject, as follows:

He describes the case of a woman who induced a discharge of reddish fluid by efforts at urination, a month before the end of pregnancy. This was followed by labor, in the first stage of which she was brought to the hospital. On examination the urine was found highly albuminous; there was well-marked œdema of the abdomen and thighs. Palpation was uncertain, no evidences of foetal life were present. On vaginal examination a breech presentation was diagnosticated, the lower extremities were rigid, and delayed delivery somewhat. The expulsion of the placenta was followed by the removal of more than a quart of bloody serum and clots; after which the

uterus contracted normally. The fœtus had been dead for some time, as its lower limbs were of waxy consistence.

Budin believes that there is a causal relation between albuminuria and intra-uterine hemorrhage; small hemorrhages, placental apoplexies, are not infrequent, but profuse hemorrhage is rare. Such loss of maternal blood commences by the extravasation of blood between the placenta and the wall of the uterus; if the placenta prevents the exit of the extravasated blood it may accumulate at the centre of the placenta, whose border remains adherent. The situation of the placenta at the lower segment of the uterus may be such that blood may escape externally from time to time; in twin pregnancies an accumulation of blood between the membranes may occur.

The most frequent causes of such hemorrhage are traumatism, efforts at defecation, or any exertion which increases the tension of the abdominal bloodvessels, nervous disturbances and conditions altering the constitution of the maternal blood.

The diagnosis of intra-uterine hemorrhage during pregnancy is often difficult; variations in the contour of the abdomen sometimes aid in recognition of the condition. When the hemorrhage is profuse constitutional depression presents well-marked symptoms easy to apprehend. Severe uterine pain and sudden increase in the size of the uterus are also symptoms of profuse intra-uterine hemorrhage. These symptoms are followed by the discharge of blood or reddish fluid from the vagina; the continuance of hemorrhage and the accumulation of blood within the uterus may result in irritating the uterine muscle and inducing labor. Most commonly, however, the milder grades of hemorrhage are met with, and few, if any, symptoms are easily discerned.

After delivery examination of the placenta will commonly reveal changes in its form caused by retained clots, which also leave their impress upon the membranes with which they have been in contact; the disorganized blood discharged after labor is to be distinguished from fresh blood.

The prognosis of this complication of pregnancy is grave, the mortality of mothers being about 50 per cent., of children over 90 per cent. The treatment indicated is rapid delivery, if the mother's life is in danger. If not, authorities differ, some urging an expectant plan, securing thereby the pressure of the bag of waters as a hæmostatic, while others urge immediate dilatation of the cervix and delivery. Budin agrees with the former.

THE NORMAL COURSE OF PUERPERAL TEMPERATURE.

HUNT, in the *Practitioner* for February, 1888, reports the results of an inquiry into this subject, which elicited reports from seventy-five cases. The first point of interest in these reports is that a large number of cases were free from pyrexia. In 27 per cent. the temperature did not exceed 99°; in 16 per cent., 99.4°; and in 23 more it never exceeded 100°. Thus, in 70 per cent. it never exceeded 100°, and in 43 per cent. it was always practically normal—that is, no higher than 99.4°. Of the remaining twenty cases, in twelve it varied from 100°–101°, in four from 101°–102°, in three from 102°–103°, and only exceeded the latter temperature in one case, rising to 103.4°.

With regard to the date of the highest temperature, a consideration of fifty-one of these cases (omitting those which were normal throughout) shows

that in ten the temperature was highest on the first day. In many of these cases, however, the cause of the rise of temperature was almost certainly a neurotic one; in nine the highest temperature was on the third day, in eight on the fourth, and in eight more on the fifth day, and in seven on the second. There thus appears to be very little difference between the various days, after the first the third having a very slight superiority.

With regard to perineal tears, the rise of temperature was slightly above the average, but not markedly so. Of the seventy-five cases under consideration, ten had lacerated perinæa, all of them, to the credit of the doctor be it said, but slightly torn. In one case the temperature was normal throughout, in three the highest temperature was between 99° and 100° ; in three between 100° and 101° ; in two between 101° and 102° , and in one 102.2° . In the worst case the tear extended half-way to the anus, taking place in the cicatrix of an old tear; three stitches were put in at once, but the wound did not heal, probably owing to the insanitary condition of the house. In this case the highest temperature recorded was on the fourth day, 99.2° , and this slight rise might have been accounted for by cracked nipples. In the one case in which the temperature reached 102.2° , the tear was very slight, and the rise due to mental causes. In the only other case worth noticing the tear was three-quarters of an inch in length, and one suture was used. The recorder remarks, "This was a hard forceps case in a primipara; throughout the first week the temperature varied from 99° to 100° ."

With regard to the use of forceps. Seven cases were recorded, in none of which was the temperature normal throughout. In three, or 45 per cent., it did not exceed 100° , and the highest temperature noted in any was 101.4° . Two of the cases are recorded as difficult, and in three the forceps were applied when the head was either at or just through the brim.

With regard to the primiparæ, who numbered twenty-one out of the seventy-five cases, in four, or 19 per cent., the temperature was normal throughout; in eleven, or 50 per cent., it did not exceed 100° ; in four it exceeded 101° , and in one 102° .

The highest temperature was occasioned by sudden grief. Adherent placenta caused a temperature of not over 102° , the highest being produced by a mild septic absorption. If the mammary secretion was established normally, without distention or cracked nipples, no fever occurred. Retention of feces and urine caused a rise of temperature; after-pains, with expulsion of clots, also.

The deductions which may be drawn from these investigations seem to be that in a large number of cases, as we should expect would be the case in a purely physiological act, labor and the lying-in period are free from any marked fever; but at the same time the whole system, and especially the mental system, is in a state in which it is very ready to receive impressions from without, and that any reflex irritation or any mental excitement causes a rise in the temperature which may be most marked, but which ceases on the removal of the cause.

ACCIDENTS CAUSED BY INTRAUTERINE INJECTIONS.

MANGNIN, of Paris, contributes a paper of practical interest to the *Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 12, 1887, and Nos. 1 and 2,

1888, upon this topic. He finds that those who have reported such accidents have given as their exciting causes passage of fluid into the peritoneal cavity through the Fallopian tubes; entrance of air into the venous sinuses of the uterus; entrance of liquid into the uterine veins; absorption of retained fluid after injection; percussion of the uterus by fluid forcibly introduced; rapid distention of the uterus; the production of hemorrhage; detachment of an embolus; the appearance of rigors, metritis, or peritonitis.

Mangnin divides accidents caused by intrauterine injections, from the clinical standpoint, into accidents from retention of fluid; septic accidents; accidents resulting in nervous shock. The simple retention and gradual absorption of fluid is not of very frequent occurrence, generally accompanies repeated injections, and can, therefore, be avoided.

There is sufficient evidence on record to demonstrate that fluid may pass along the Fallopian tubes into the peritoneal cavity. Fontaine has shown that but very moderate pressure is sufficient to force fluid through the tubes. In health, however, the tubes admit fluid only drop by drop, and hence a safeguard is afforded against the rapid entrance of fluid.

In conditions of the uterus accompanied by dilatation of the tubes, as interstitial fibromata, endometritis associated with salpingitis, fluid will pass more readily. In addition to cases previously reported, Mangnin adds the case of a patient in the clinic of Doléris, who was treated for interstitial fibroma of the anterior wall of the uterus. The first intrauterine injection of bichloride of mercury solution, 1 to 2000, was not followed by ill effects. The second, two days later, caused sudden and severe pain, followed by symptoms of intoxication with mercury. The uterus was carefully emptied of any contained fluid, although but very little was found, and the patient recovered. Careful examination of the circumstances attending the accident led to the belief that fluid had traversed the Fallopian tubes. Cases reported by others are cited, where poisoning from various antiseptics followed injections, fluid having traversed the tubes, in puerperal cases.

The direct entrance of fluid into the circulation through the uterine veins is the most frequent accident accompanying the retention of fluid, and is followed by the gravest results. Physiologists have shown that the blood tension in the uterine veins is such that but moderate pressure is needed to cause an injected fluid to penetrate the uterine vessels. It follows, that should fluid be retained, it may readily enter the circulation. The uterus, when empty, closes its venous sinuses by its complete and symmetrical contraction. The retention of a portion of the placenta or membranes, by preventing complete contraction of all portions of the uterine surface, favors the passage of fluid. If the fluid be innocuous, but trifling effects will follow; but if it be an irritant (preparations of iron, mercury, or carbolic acid), embolism or poisoning will occur.

Septic accidents are characterized by the occurrence of rigors and fevers, following intrauterine injections. Mangnin believes that these phenomena are caused by the entrance of septic matter, contained in the uterine lymphatics, into the circulation through the pressure of uterine contraction caused by the stimulus of the intrauterine douche. A previous septic infection generally exists in these cases, and the douche, by promoting septic absorption, causes exacerbations of septicæmia. It is evident that repeated intrauterine

injections are rarely indicated in puerperal septicæmia, and that the greatest caution is requisite to prevent them from doing harm. Several cases are cited in which the cessation of douches was followed by the cessation of rigors and fevers.

The nervous shock produced by intrauterine douches occurs in non-pregnant, nervous women, and is a reflex caused by the impact of the injected fluid. It is of little importance, and not followed by serious results.

Mangnin concludes that it is of the greatest importance that intrauterine injections be given through a double canula, that devised by Doléris being his choice, but the essential element being two constantly pervious channels. The canula, catheter, or tube should not be capable of compression and occlusion by the cervix, for the cervix is sometimes stimulated to contract by the insertion of the canula, and if it is occluded, the fluid imprisoned in the uterus is readily absorbed. All apparatus which *propels* fluid is rejected; only the "fountain syringe" (a receptacle placed above the patient's level) is recommended. This receptacle should not be higher than ten or twelve inches above the patient, and to obviate the danger of retention of fluid, the return tube should be carefully guarded and connected with a receptacle placed beneath the patient.

Especial caution is indicated when the uterus contains a portion of placenta, membranes, or a tumor, for reasons already stated. All violence should be most carefully avoided; also the injection of air. In cases of renal implication, mercurials should not be used; if their use is unavoidable they should be followed by injections of hot water. The temperature of intrauterine injections should be 85° or 86° F. in ordinary cases. Cold injections should never be given. Accidents following vaginal douches and presenting the symptoms of those caused by intrauterine injections, are generally the result of inserting the canula within the cervix, or the entrance of fluid through a patent os and cervix. Equal precautions should be taken in giving vaginal injections.

OVARIOTOMY DURING PREGNANCY; RECOVERY; DELIVERY AT TERM.

The *Sei-I-Kwai Journal*, No. 2, 1888, of Tokio, Japan, reports an interesting case of ovariectomy at three months pregnancy, followed by recovery and delivery of a healthy child at term. The cyst was of the left ovary, and recovery from the operation was complicated by pleuro-pneumonia. The patient rallied, however, and left the hospital convalescent on the twenty-sixth day after operation. Although a sound had been introduced into the uterus, in addition to the ovariectomy and subsequent illness, the patient was delivered of a healthy child at term, and the puerperal period was normal.

SCARLATINA IN PREGNANCY; ITS RELATION TO PUERPERAL FEVER, AND TREATMENT.

At the meeting of the Obstetrical Society of London, of March 7, 1888, DR. BOXALL read the concluding sections of a paper on scarlatina in pregnancy, in which he discussed its relation to puerperal fever and its treatment, as follows:

A brief summary of sixteen cases of undoubted scarlatina was given, and in only one case were the scarlatinal manifestations associated with signs of septic poisoning. Forty lying-in patients are known to have been exposed to one or more of the above cases of scarlatina. This series was presented in a tabular form, giving the time and duration of exposure and the course of the puerperium. On this evidence it was apparent that such exposure resulted in no detriment to the puerperium. As it might be urged that the three hundred patients or more admitted during the prevalence of scarlatina were to a greater or less extent exposed, a chart (together with the percentage tables from which it was constructed) was also appended. This indicated the morbidity (as judged by the temperature) prevailing not only during the whole scarlatinal period, but also during the three months which preceded the outbreak. The prevalence of scarlatina in the hospital was thus shown to have exerted no appreciable effect on other lying-in cases during the same period. The special value of local antiseptic measures in scarlatina during the lying-in period having been discussed, the following conclusions were offered: 1. That infection by poison of scarlatina generally produces in the puerpera a disease which presents for the most part the usual symptoms of scarlatina, and runs the ordinary course of the disease without the appearance of septic manifestations. 2. That the disease, in addition to the usual symptoms of scarlatina (to a certain extent modified), may occasionally present signs of septic poisoning; that, when present at the outset of the disease, pelvic inflammation and septicæmia may usually be regarded as accidental complications, but, at a later stage, such signs may be the expression of septic processes analogous to the secondary throat of ordinary scarlatina. 3. That in rare instances the disease may assume a masked form, in which the ordinary signs of scarlatina are absent, or so slight and evanescent as to escape observation; and that, in some such cases, the only manifestation of the illness may be found in signs usually referred to septic poisoning.

After referring in very brief terms to remedial measures, the author discussed the means which should be adopted to prevent the spread of scarlatina to pregnant and parturient women. He pointed out the advisability, on the one hand, of isolating all scarlatinal cases and disinfecting all contaminated articles; and, on the other, of shielding pregnant and parturient women from the many risks of scarlatinal infection which surround them, and when possible, of removing such patients from any district in which the disease is prevalent. The influence of a third person as a vehicle of infection was discussed, with special reference to the conditions under which it is likely to be exercised; and the measures which may be adopted to counteract that influence were pointed out. Finally, as the poison may be carried not only directly by the hands, but also indirectly by the clothes and general surface of the body, and possibly also by the breath, and subsequently given off into the atmosphere (from which it is inhaled by the patient), it was concluded that thorough washing and disinfection of the hands is not sufficient to ensure protection, but that a disinfectant bath, a complete change of clothing, and active outdoor exercise, should be also included in the necessary precautions, and that these measures should be adopted not only by the doctor, but also by all other persons who had been brought into contact with scarlatinal poison, and especially by the nurse prior to attending on a lying-in woman or even visiting a patient advanced in pregnancy.—*Lancet*, March 24, 1888.


GYNECOLOGY.

 UNDER THE CHARGE OF

 HENRY C. COE, M.D., M.R.C.S.,
 OF NEW YORK.

THE FLAP OPERATION FOR REPAIR OF RUPTURED PERINEUM.

SÄNGER (*Sammlung klin. Vorträge*, No. 301) reports eighteen successful cases in which he operated according to Tait's method, and commends it highly. He gives the following brief directions:

1. In incomplete rupture insert a cotton tampon into the rectum, split the recto-vaginal septum transversely with a pair of sharp-pointed scissors, curved on the flat, over a surface five-eighths of an inch long and one and a half inches wide. From each end of this cut surface make two vertical incisions (having the shape of ) , draw the flaps upward and unite the edges of the quadrangular raw surface by deep silver sutures carried on a curved needle, with intermediate sutures of silkworm gut, the latter being removed on the seventh, the former on the fourteenth, day.

2. In cases of kolpocoele, with or without laceration of the perineum, the same operation is performed (preceded by amputation of the portio vaginalis, or kolporrhaphy, if necessary), but the vertical incisions are carried further forward, so as to form a very narrow introitus and high, thick perineum.

3. In old lacerations through the sphincter he splits the recto-vaginal septum transversely with a scalpel, forming a vaginal and a rectal flap, then the lateral incisions are made as before, and are carried backward as far as the ends of the sphincter muscle (forming a figure H); the vaginal flap is drawn forward, the rectal backward, the raw surfaces being united as before, the sutures being introduced from the perineal side only, as this avoids the formation of a recto-vaginal fistula. The bowels are moved on the third day.

 HÆMATOMA OF THE VULVA IN THE NON-PREGNANT.

HIMMELFARB (*Centralblatt für Gynäkologie*, March, 1888) calls attention to the rare occurrence of hæmatoma of the external genitals, except in connection with pregnancy. In the non-pregnant it is caused by mechanical violence, such as a blow or a fall upon some sharp object.

The following interesting case is cited: A married woman, thirty-five years of age, applied to the hospital, complaining of severe pains in the external genitals, associated with the presence of a tumor, which had suddenly developed a week before. On examination, the left labium majus was enlarged to the size of the fist, and obstructed the vulvo-vaginal outlet, so that the patient was obliged to push it aside in order to urinate. The tumor was tense, of a dark bluish color, and was exceedingly sensitive. No enlarged veins could be seen on the external genitals or the lower extremities. The internal genital organs were normal. The patient stated that immediately after violent coitus she was playfully bitten on the left labium by her amorous companion; she

felt severe pain, and a tumor rapidly developed at the site of the injury. The pain became so severe that she was finally compelled to seek medical aid. It was relieved by rest and cold applications, then the swelling was incised, a handful of coagulated blood was turned out, and the cavity was irrigated and packed with iodoform gauze. The wound healed rapidly.

Commenting on this case, Himmelfarb says that the tumor was of unusual size, and the cause unique. He had been able to find very few recorded instances in which hæmatoma of the vulva had followed such a slight injury. Possibly the general hyperæmia of the genitals consequent upon coitus might explain the extent of the effusion.

THE NATURE OF THE HYMEN.

SUTTON (*Ibid.*) infers from his embryological studies that the hymen is merely a septum which results from the imperfect fusion of the proctodæum with the urinogenital section of the cloaca. Imperforate hymen is present when this septum is complete, the other forms being due to different defects in it. In rare cases the hymen is absent at birth. An analogy is furnished by the mode of formation of the beginning of the alimentary tract, the mouth and pharynx being developed by the stomodæum, or involution of the surface-epiblast, which meets the blind anterior end of the fore-gut at a point corresponding to the future cricoid cartilage; when complete union occurs a diaphragm is formed similar to the hymen. In general, whenever in the embryo two culs-de-sac come together and exert mutual pressure, the part compressed becomes perforated, and a hymen-like septum results, which may subsequently disappear. It is interesting to note that abnormalities of the vulvo-vaginal orifice are frequently associated with defects in the alimentary tract.

EPITHELIOMA CAUSED BY THE LONG RETENTION OF A PESSARY.

SAWIN (*Watch*, No. 47, 1887) communicated to the Surgical Society at Kieff, the case of a woman who had a bloody, fetid discharge from the vagina. On examination he discovered a large wax pessary which the patient said had not been removed for eleven years. It was necessary to cut it in two before it could be extracted. The patient had never used vaginal injections, and the vagina was filled with fetid secretion, after removing which an epitheliomatous mass as large as a pear was seen on the lateral wall of the vagina, at the point where the pessary had rested.

HIGH AMPUTATION VERSUS VAGINAL HYSTERECTOMY.

An interesting discussion of this question was held at a recent meeting of the British Gynecological Society (*Brit. Gyn. Journal* for February, 1888). It was introduced by DR. PURCELL, who reported a case of vaginal extirpation of the uterus for epithelioma in which recurrence took place four and a half months after the operation. Tait, who examined the patient, stated as his opinion that the disease had advanced more rapidly in consequence of the operation. The reporter said that, of the four patients whose uteri he had removed for cancer, one died in six months, and another ten and a half

months after the operation, while a third was then in good health after the lapse of two years. He believed that total extirpation is justifiable only when the disease is confined to the body, the organ not being greatly enlarged and still movable, while the vagina is free from disease. If the vagina is involved, if the disease has extended to the mucous membrane in the neighborhood of the os internum, or if it is confined to the cervix, the radical operation is not justifiable.

In the discussion that followed DR. BARNES agreed substantially with the speaker, and intimated that the statistics of German operators ought not to be too hastily accepted as conclusive. It should not be forgotten that Grigg had reported inoperable cases of cancer in which the patients had survived from two and a half to eight years, although they were let absolutely alone.

The general sense of the Society seemed to be against the frequent performance of vaginal hysterectomy.

THE TECHNIQUE OF ERGOTIN INJECTIONS.

SCHÜCKING (*Centralblatt für Gynäkologie*, February 25, 1888) observes the following precautions in injecting ergotin: The needle must be aseptic, the solution freshly made and undiluted, and the needle is introduced to the depth of a quarter of an inch into the anterior or posterior lip of the cervix uteri. It is claimed that this injection is painless, free from danger, and more prompt and efficient in its action than any other. The rich lymphatic supply of the uterus favors the rapid absorption of the drug. Schücking has never observed any ill effects either local or general following this operation, and in the reported cases in which such ill effects, were noted he believes that in every instance the ergotin was injected, not into the portio vaginalis, but into the body of the uterus or the fibroid itself. The latter method he always avoids. The proper disinfection of the needle is of primary importance. He has also seen good results follow injections of iodine and Fowler's solution in cases of subinvolution of the uterus accompanied with a flabby condition of the organ, and resulting displacement, operative interference (amputation, repair of the cervix) being rendered unnecessary.

AN UNDESCRIBED FORM OF DEGENERATION OF THE OVARY.

GOTTSCHALK (*Centralblatt für Gynäkologie*, No. 31, 1887) reported the following case at a meeting of the Berlin Obstetrical Society. A lady, twenty-eight years of age, had been married ten years, but had never borne children. During the past four years she had had profuse menorrhagia, for which she had been vigorously treated, the uterine cavity having been curetted no less than seventeen times (!) without benefit. Landau finally performed vaginal hysterectomy, removing at the same time both ovaries, which were enlarged to two or three times their usual size. Six months later the patient was perfectly well. A gross examination of the specimens showed nothing abnormal about the uterine mucosa; the wall of the organ was somewhat thickened. Both ovaries were filled with small sanguineous cysts, which, at first sight, seemed to have arisen by hemorrhage into dilated Graafian vesicles; on microscopical examination, however, it was found that the collections of blood were contained within irregular cavities, without proper walls.

Gottschalk called the condition "cavernous transformation of the ovary," and explained it by supposing that there was a new formation of connective tissue along the vessels, which subsequently contracts and causes dilatation of the latter. Sections made through the endometrium and submucosa showed intense hyperæmia of this region, accompanied by general vascular dilatation and minute extravasations.

It was noted at the time of the operation that the uterine arteries were unusually large. There seemed to be a direct connection between the condition of the ovaries and the uterine hemorrhage, and the uselessness of curetting was shown by the condition of the endometrium. As the hyperæmic state of the latter was consequent upon the free anastomosis of the ovarian and uterine arteries, Gottschalk suggested that a cure might have been obtained by opening the abdomen and ligating on both sides the anastomoses between the arteries at a point near the ovarian ligament, without removing the ovaries.

[It seems hardly necessary to resort to such an elaborate explanation of the occurrence of the irregular blood-cysts found within the ovaries, since the description fits exactly that of the interstitial hemorrhages so common in soft fibro-myomata and commencing fibro-cysts, but rather rare in the ovarian stroma. The fact that there was no regular wall or epithelial layer in the cavities, seems to be against the theory of their origin from dilated vessels. The congested condition of the uterus, and the appearance of the pelvic vessels, suggest that the hyperæmia and interstitial hemorrhages in the uterus represented simply a concomitant, and not a causal relation. Whatever the cause of the pelvic congestion may have been, it was doubtless dependent upon one less localized than the degeneration of the ovaries, it was one of those peculiar cases (of which we have seen three or four) in which the cause of the menorrhagia remains unknown, and no change is observed after removal of the ovaries.—ED.]

GALVANISM IN THE TREATMENT OF SUBACUTE PELVIC INFLAMMATION.

APOSTOLI (*Nouvelles Archives d'Obstétrique et de Gynécologie* for February, 1888), after describing a case of hydrosalpinx which he treated successfully by means of the constant current, lays down the following rules:

1. Fever and inflammatory conditions are no positive contraindications to the methodical use of the constant current in gynecology.

2. Non-suppurative inflammation of the uterine appendages may be treated beneficially by galvanism; suppuration is a contraindication.

3. Galvano-puncture aborts phlegmon and arrests inflammatory processes in their inception; the separation of the resulting eschar allows a convenient channel for vaginal drainage.

4. Every case in which a periuterine exudate projects into the vaginal cul-de-sac is a proper one for the application of galvano-caustic puncture.

5. Salpingitis and hydrosalpinx may be safely and easily treated in this way, provided that the tumor lies in close proximity to the fornix.

In every case the operator should observe proper precautions as to the seat of puncture, its depth, and the size of the trocar; strict antisepsis must be observed, and the patient kept in bed after each *séance*.

AMENORRHŒA IN DIABETES.

COHN (*Zeitschrift für Geb. u. Gyn.*, Bd. xiv. Heft i.) reports four cases, of which the following are brief notes:

Case I. An unmarried woman, æt. twenty-one, first menstruated at fifteen; the flow was regular for two years and then ceased. She had suffered with diabetes for three years. When examined the uterus was found to be atrophied, while the ovaries could not be felt.

Case II. Married woman, æt. thirty-six. Had borne five children. Menstruation irregular and very scanty during the past two years and a half. Urine contained sugar.

Case III. Æt. forty-two, the mother of five children; amenorrhœa for several months. Uterus atrophied. Urine contained sugar. [Why not the menopause?—ED.]

Case IV. Æt. thirty-six, two children. For several months entire absence of menses. Uterus atrophied. Diabetes insipidus.

The amenorrhœa was attributed to failure of nutrition, as in phthisical patients.

STROPHANTHUS IN THE TREATMENT OF METRORRHAGIA AT THE MENOPAUSE, AND IN PLETHORIC FEMALES.

POULET (*Gazette de Gynécologie*, February 15, 1888) recommends the drug highly in this class of cases. He rejects strophanthin and the tincture as uncertain, prescribing a pill containing five centigrammes (five-sixths of a grain) of the freshly powdered seeds, two to be taken on the first day, three on the second, and four on the succeeding days, if necessary. Two cases are reported in which hemorrhage at the climacteric was promptly checked by two doses of the pills.

The writer calls attention to the fact that in this class of patients, in spite of the considerable loss of blood, the arterial tension is not lowered, since irritation of the vasoconstrictors is peculiar to the menopause. Ergot, digitalis, belladonna, and other drugs, which increase arterial tension, are, therefore, of little value as hæmostatics; the reverse condition exists in the puerperal state. Strophanthus is especially useful, because it has no vasoconstrictor action, but diminishes tension by regulating the general circulation; it is especially adapted to subjects at the period of the menopause, because arterio-sclerosis is common at this time of life.

Hemorrhages in stout, plethoric women, during the age of fecundity, are essentially of the nature of transudations, the blood being watery and deficient in red disks, while there exists a general want of tone in the muscular system, which is favorable to diapedesis. Metrorrhagiæ in such patients are often very obstinate. Tonics and astringents are uncertain in their action. Strophanthus not only causes diuresis, thus remedying the "aqueous plethora," but at the same time acts directly upon the smooth muscle-fibres of the uterus, promoting contraction, and thus preventing diapedesis. Reference is made to several cases of rapid recovery after the exhibition of this remedy.

THE TREATMENT OF HYSTERIA AND NEURASTHENIA.

BURKART (*Berliner klin. Wochenschrift*, 1887, Nos. 45-47) reports the results of the Weir Mitchell treatment as applied to forty-three carefully selected cases. He insists on the need of discrimination in the selection of patients, since only a certain class are likely to be benefited, while the others will only be made worse. Among the forty-three patients thirty-six were women, all of whom were hysterical. He divides the cases into ten groups, viz.:

1. Visceral neuroses, especially ovarian and uterine neuralgia. Five patients were treated, three being cured. It is interesting to note, he observes, that in this class of cases castration gives only temporary relief; he had under treatment four patients whose ovaries had been removed without permanent benefit.

2. Dyspepsia of hysterical origin; two patients were treated, both being cured.

3. Dyspepsia due to neurasthenia; three were treated, two being cured.

4. Hysterical spine, associated with paralyses; four were cured out of six.

5. Cerebro-spinal hypochondriasis, due to neurasthenia; three out of four were cured.

6. Pure hysteria, with psychical delusions; three patients were treated without benefit.

7. Hysterical convulsions; five out of seven were cured.

8. Migraine and neuralgia were cured in seven out of eight cases.

9. Anæmia and amenorrhœa, associated with hysteria; four patients were treated, with entire success.

10. Hysteria resulting from previous illness; one patient was treated with benefit.

In conclusion, the writer admits that the permanency of the cure is always doubtful; it can only be positively affirmed when the influences which originally led to the development of the affection have been entirely removed.

Note to Contributors.—All communications intended for insertion in the Original Department of this Journal are only received with the distinct understanding that they are sent to this Journal alone. Gentlemen favoring us with their communications are considered to be bound in honor to a strict observance of this understanding.

Liberal compensation is made for articles used. Extra copies, in pamphlet form, will, if desired, be furnished to authors in lieu of compensation, *provided the request for them be written on the manuscript.*

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
A Contribution to Hepatic Surgery, with a suggestion as to rendering a portion of the liver extraperitoneal. By L. McLANE TIFFANY, M.D.	549
Report of Thirty-one Cases of Heat Fever treated at the Pennsylvania Hospital during the Summer of 1887. By F. A. PACKARD, M.D.	554
Alcoholic Paralysis. By C. W. SUCKLING, M.D. Lond., M.R.C.P.	567
A Case of Alcoholic Paralysis. By BYRON BRAMWELL, M.D.	575
Cardiac Degenerations and Bright's Disease the Result of Changes in the Intima of the Arteries and Veins. By ARTHUR V. MEIGS, M.D.	588
Malignant Œdema and Fat Embolism. By L. BREMER, M.D.	594

REVIEWS.

A Manual of Diseases of the Nervous System. By W. R. Gowers, M.D., F.R.S.	603
Transactions of the American Surgical Association. Volume the Fifth. Edited by J. Ewing Mears, M.D.	606
Transactions of the American Gynecological Society for the Year 1887	607
Du Catarrhe Chronique; Hypertrophique et Atrophique des Fosses Nasales, de l'Ozène, Obstruction Catarrhale des Trompes d'Eustache; Végétations Adénoïdes du Pharynx. Traitement par la Galvano-caustique Chimique.	609
The Passage of Air and Feces from the Urethra. By Harrison Cripps, F.R.C.S.	610
A Manual of Treatment by Massage and Methodical Muscle Exercise. By Joseph Schreiber, M.D.	612
Three Hundred and Eighty-four Laparotomies for Various Diseases, with Tables Showing the Results of the Operations and the Subsequent History of the Patients. By John Homans, M.D.	613
The Treatment of Hemorrhoids by Injections of Carbolic Acid and other Substances. By Silas P. Yount, M.D.	614

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE		PAGE
The Carbolic Acid Treatment of Small-pox	615	The Toxic Effects of Tin	616
Inhalation of Vapor of Fluorhydric Acid	615	The Treatment of the Muscular Atrophy of Phthisis	616
Resorcin in Ulceration of the Tongue	616	Erectile Tumor Cured by Electrolysis	617
Amylen Hydrate	616	The Absorption of Lanolin	617
		Formulæ	617

MEDICINE.

	PAGE		PAGE
On Chronic Progressive Chorea [Huntington's Chorea; Hereditary Chorea]	617	Researches on the Etiology of Infectious Endocarditis	623
Significance and Value of the Tendon Reflex	618	The Pathological Significance of the Auscultatory Sounds in the Crural Arteries	623
Clinical and Anatomical Notes on Syringomyelia	620	On the Condition of the Gastric Secretion in Febrile Diseases	624
An Atypical Case of Thomsen's Disease (Myotonia Congenita)	621	On the Diagnosis and Therapy of Round Ulcer of the Stomach	624
Empyema after Fibrinous Pneumonia	621	Lipogenic Diabetes	625
Cerebral Symptoms in the Pneumonia of Children	622	Influence of Diet on Albuminuria	626
		Cyclic Albuminuria	626

SURGERY.

Cerebral Surgery	627	Resection of the Ankle-joint	634
Suppuration and Septic Diseases	631	Inguinal Properitoneal Hernia	634
Two Cases of MacEwen's Operation for the Radical Cure of Hernia	633	The Endoscope in the Diagnosis of Vesical Diseases	635

DERMATOLOGY.

On a Form of so-called Seborrhœa	636	The Etiology and Symptomatology of Alopecia Areata	638
Pemphigus Acutus seu Febrilis	637	Xeroderma Pigmentosum and its Relation to Malignant New Growths of the Skin	639
Pemphigus Universalis	637	Double Comedo	639
The so-called Verruca Necrogenica and its Relation to Lupus and Tuberculosis	638	Tuberculosis of the Skin	640
The Mechanico-surgical Treatment of Skin Diseases	638		

OBSTETRICS.

The Treatment of Placenta Prævia	640	Hypnotism in Obstetrics	643
The Effect of Ergot upon Involution of the Uterus	641	The Power of Resistance of the Parturient Uterus to Germs	644
The Etiology of Puerperal Fever	641	The Relationship between Albuminuria and Diseases of the Placenta	645
Alcoholism in Obstetrics	642	The Treatment of Occipito-posterior Positions	645
The Treatment of the After-birth in Normal Labors	642		

GYNECOLOGY.

Attachment of the Retroflexed Uterus to the Anterior Abdominal Wall	646	Exercise of the Pelvic Muscles and Methodical Elevation of the Uterus	649
The Radical Cure of Retroflexion by a New Method	647	The Diagnosis and Treatment of Peritoneal Adhesions of the Displaced Uterus	650
Palpation of the Uterus and Ovaries after Dilatation of the Rectum	648	Laceration of the Cervix and its Treatment	651
Intestinal Obstruction after Ovariectomy	649	Supra-vaginal Amputation of the Uterus	652
The Cure of Prolapsus Uteri by Ex-			

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

JUNE, 1888.

A CONTRIBUTION TO HEPATIC SURGERY,
WITH A SUGGESTION FOR RENDERING A PORTION OF THE LIVER
EXTRAPERITONEAL.

BY L. McLANE TIFFANY, M.D.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF MARYLAND.

IN the following pages I have ventured to place in the same category the two apparently very dissimilar pathological conditions, abscess of the liver and stone in the gall-bladder, because a cure was wrought in both instances by operative measures in the main identical. The important part of each operation was the shutting off of a portion of the liver by suture from the general cavity of the belly, so that treatment could be directly applied irrespective of the neighboring but not entirely investing peritoneal sac.

CASE I. *Abscess of liver following dysentery; laparotomy; suture of parietal peritoneum to liver; drainage and irrigation of abscess cavity; cure.*—H. B., male, aged twenty-four years, American parentage, a winner of athletic prizes (long distance runner), gave the following history. October, 1884, he suffered from acute dysentery which greatly debilitated him. March, 1885, he started on a Southern trip, but returned in a month, dysentery having reappeared. In July he went to the mountains, deriving benefit, and in August to the seashore, but derived no advantage to his health. During the following winter his bowels were irregular as also during the spring, appetite was capricious and exercise impossible owing to general lassitude. He was now told by his physician that he suffered from congestion of the liver. During the summer and autumn of 1886 bowels, appetite, and general lassitude did not improve, pain in the right shoulder was occasionally noticed, and two or three chills, at irregular intervals, occurred.

I first saw the patient January 20, 1887. His general aspect was scarcely that of a man who had been ill twenty-seven months. His

complexion was pale, lips pink, in walking the trunk was held stiffly erect, and when seated a pillow was always placed behind the back for support. Measurement showed the base of the right chest slightly larger than the left. The liver did not project below the ribs, but the respiratory murmur was less marked in the lower right chest than on the left side. Percussion revealed nothing. Heart was normal. Examination of urine, as well as rectal exploration by sight and touch, was negative. The bowels were usually constipated, and the stools rarely of natural color, clay colored often; blood was sometimes seen, so it was said, but I found none though careful search was made. Temperature normal in the morning, but about one degree higher in the evening. Pulse was never under 116 per minute.

Liver abscess was strongly suspected, and during the following two or three weeks the liver appeared below the ribs while respiratory sounds in the right chest were not heard as low as in the left chest, being replaced by dulness. Pain in the right shoulder was marked, and measurement of right base showed increase compared with left of one-fourth of an inch.

A diagnosis of liver abscess in the concavity of the diaphragm was made, and aspiration advised. Dr. Salzer, who had attended the patient some months previously, met me in consultation, confirmed the diagnosis, and concurred in the proposed treatment.

March 9. I aspirated between the ribs in the anterior axillary line nearly on a level with the nipple, that being the place where the respiratory murmur ceased. I selected this point because near the collection of pus, and I was unwilling to pass a needle for diagnostic purposes through the whole liver thickness. I thought also that the pleural membrane could be disregarded. Nearly a quart of brown, highly characteristic, inodorous pus was withdrawn; the patient's condition was rendered much more comfortable. Improvement was of but short duration, one week later the patient had a well-marked rigor, followed by sweating; the liver descended, the line of respiratory murmur ascended, the pulse 130 per minute, etc. Radical measures were clearly indicated. I chose the peritoneal route rather than between the ribs, as giving more room and better drainage. Present, Drs. Salzer and Martin.

Operation, March 19th, with antiseptic precautions, except the spray, mercuric bichloride being the antiseptic. An incision three inches long was made just below, and parallel to, the right costal cartilages, and carried down to the peritoneum; hemorrhage being arrested, this membrane was opened for a distance of two inches, and the liver exposed; it was not adherent. Slight traction on each lip of the wound caused the edges of the peritoneum to open widely, showing an oval area of liver surface, one by two inches. With a fine needle and silk I sewed by close continuous suture the peritoneum edge and liver surface together. The general cavity of the peritoneum was thus shut off from my wound, and I had a button-hole of extraperitoneal liver, so to say, one by two inches, at my disposal for operation. Pressure by sponge arrested the slight oozing from liver tissue where sewn. An aspirator needle was passed into the exposed liver, and directed toward the abscess; resistance ceased after traversing about three inches of hepatic substance and pus flowed. Using the canula as a guide, the abscess was freely opened, about two quarts of brown pus were evacuated, and the cavity freely irrigated, pressure arrested bleeding from the liver tissue. A large drainage tube

was placed in the wound, and an iodoform gauze dressing adjusted. It was noted that flakes of white pus were mixed with the usual brown liver pus, as though acute inflammation was present, possibly set up by the tapping (?).

The dressings were changed as soiled, and the abscess cavity irrigated. All went well, fever disappeared, pulse became less rapid and more strong, appetite improved. Convalescence was apparently established. Two weeks later pus ceased to appear, perfectly clear bile in large quantity replacing it, and a marked change for the worse was noticed in the patient. The bowels filled with gas, the appetite failed, the tongue became less moist, the complexion mottled and "dirty." I gave dried ox-gall in capsules, with the effect of somewhat improving the symptoms, but it was evident that unless the bile would flow into the intestine my patient's days were numbered. I believed that a large bile duct was opened, possibly by pressure of the drainage tube, so I replaced the large by a small tube, no good resulted. An aseptic condition of the wound was present during the continuance of the biliary flow, and bile, as an antiseptic dressing, naturally suggested itself for future trial.

I then withdrew the tube, dressed with gauze (iodoform), cotton, a bandage, and let matters take their course. In a week discomfort was complained of, so I passed a probe along the track of the tube, allowing reddish-brown pus to escape, but little bile flowed. This was continued every few days for three weeks, when I replaced a drainage tube in the abscess cavity; no bile appeared, and convalescence was definitely established. It is now more than one year since the operation, the patient continues in perfect health, and follows his usual avocation.

CASE II. *Laparotomy; suture of parietal peritoneum to liver; gall-bladder opened through the liver; extraction of calculi; recovery.*—This patient I saw with Dr. George L. Wilkins, whose full notes are appended. The description of operative measures is by my own pen.

It will be seen that the route by which the cavity of the gall-bladder was reached is novel; it remains for the future to show under what circumstances it should be followed.

Mrs. N., aged thirty, married, mother of several children; previous health good; has had, since about the first of August, 1887, frequent attacks which have presented the clinical history due to the passage of biliary calculi. Has had frequent paroxysms of pain, recurring at intervals ranging from one to two weeks, of variable duration, and usually sudden in their onset and disappearance. The pain always started from the right hypochondriac region, extending toward the epigastric region, the right shoulder, and back. Jaundice always followed the attacks of pain. Urine showed the presence of bile, and the feces were clay colored. Vomiting usually followed the attacks, and throughout dyspeptic symptoms predominated. Palpation and percussion showed pain and tumefaction in the right hypochondriac region. Gall-stones were found from time to time in the feces. After exhausting all of the usual measures of treatment, including the so-called bile solvents, and despairing of the life of the patient, operative treatment was proposed and accepted.

Condition on the day of the operation: small, frail woman, considerably emaciated; skin and conjunctiva considerably icteric; pulse 96 and

feeble; temperature 99.6°. In the right hypochondriac region a tumor could be felt which was painful to the touch, movable, its position approaching the median line when patient was placed on her left side, and following the respiratory movements of the liver. Operation performed at 12.45, January 17, 1888, under strict antiseptic precautions, except the spray; room well heated; ether used as anæsthetic.

Operation.—A vertical incision two inches long was made over the induration in the right hypochondriac region. The peritoneum was exposed, and, bleeding being arrested, was opened to the same length as the skin wound. The liver came into view; digital exploration failed to detect the gall-bladder. The incision through the abdominal wall was extended two inches downward, permitting free manual and ocular examination. It was found that the intestines were adherent to the under surface of the liver and to the gall-bladder. This latter viscus, felt through the adherent bowels, appeared to be globular, an inch and a half in diameter, and two or three inches from the edge of the liver. I did not think that if the adhesions were torn through it would be possible to sew the gall-bladder to the skin, so deeply did it lie beneath the liver. I did not make out a stone impacted outside of the gall-bladder. The liver was much enlarged, and the hardness felt through the belly walls corresponded to what I believed to be the situation of the gall-bladder.

I had intended to operate in the usual way draining the bladder externally, but in view of the conditions found, and of the excellent result obtained by stitching the liver and peritoncum together in the abscess case already stated, I operated as follows: A slender hollow needle was passed directly through the liver from above downward into the gall-bladder, on aspirating perfectly clear fluid entered the body of the syringe; I considered that if adhesions prevented the gall-bladder from projecting beyond the liver edge the same adhesions would prevent extravasation into the peritoneal cavity; so I sewed the parietal peritoneum to the upper surface of the liver, making a "buttonhole" $1\frac{1}{2} \times 2$ inches, closing also the rest of the peritoneal incision, and then using the needle, which remained *in situ* as a guide, I cut directly through the thickness of the liver into the gall-bladder. I made the incision of such a size that my finger would fill it. A gush of blood followed the use of the knife, and at once withdrawing it, I thrust my left forefinger into the wound completely arresting hemorrhage; the end of my finger recognized several stones, showing that the sought-for locality was reached. I did not move my finger for three minutes, by which time no hemorrhage followed its withdrawal. I extracted with forceps thirteen calculi, two others seemed to be in or near the duct, these broke in fragments during removal; up to this time no bile was seen, but shortly after the two last stones were withdrawn a green stain was noticed on the sponges. I considered this to indicate that the passage of bile into the bladder hitherto prevented, evidenced by the clear mucus, was now free. A rubber drainage-tube was left in the gall-bladder, and the abdominal wound closed save where the tube passed. Iodoform gauze, cotton, and a bandage completely the dressing.

January 17. 6 P. M., pulse 88; temp. 99.6°. No vomiting or pain. Opium gr. j, every three hours. Fluid nourishment.

18th. 12 M., pulse 108; temp. 100.7°. Several slight paroxysms of pain during the night. No vomiting or abdominal tenderness. Urine shows bile. Free discharge of bile through wound. 6 P. M., pulse 100;

temp. 100.5°. No vomiting, pain, or tenderness. Dressing saturated with bile.

19th. 11 A.M., pulse 88; temp. 99.5°. No vomiting, pain, etc. Continued discharge of bile through wound. Dressings clean. Discontinued opium. 6 P.M., pulse 84; temp. 99.5°. No vomiting, pain, etc. Regurgitation of small quantity of bile per mouth.

20th. 11 A.M., pulse 88; temp. 98.5°. Dressing only slightly soiled. 5 P.M., pulse 82; temp. 100°.

21st. 12 M., pulse 100; temp. 99.5°. Depressed, anxious countenance. During the night of the 20th several chills followed by bilious vomiting; urine free and contains bile. No abdominal tenderness, pain, or tympanites. Dressing slightly soiled by bile and blood. No odor. Drainage tube removed. Ordered calomel and brandy. 6 P.M., pulse 112; temp. 99°. Vomited once since morning. Continued restlessness.

22d. 9 A.M., pulse 110; temp. 100°. No vomiting or pain. Since last evening the operations showing presence of bile. Urine assuming a lighter color. Jaundice disappearing. Quinine, two grains every second hour.

23d. 10 A.M., pulse 108; temp. 100°. 5 P.M., pulse 92; temp. 99°. No vomiting, etc.

24th. 10 A.M., pulse 92; temp. 99°. 5 P.M., pulse 84; temp. 98.6°. Daily bilious operations.

25th. 1 P.M., pulse 84; temp. 99°. Cheerful. No pain or vomiting. Two operations of greenish-yellow color. Discharge from wound healthy. Continued quinine.

26th. 11 A.M., pulse 78; temp. 98.5°. No pain or vomiting. Two bilious operations. Discharge through wound of viscid mucus slightly tinged with bile.

27th. 11 A.M., pulse 76; temp. 98.5°. No pain, etc. Operation showing presence of bile.

28th. Pulse 72; temp. 98.5°. No operation, vomiting, or pain. Night of January 27th, profuse sweating followed by chill. Discharge through wound of viscid mucus and bile.

30th. Pulse 78; temp. 99°. Free discharge of bile through fistulous opening. Ordered small doses of mag. sulph. to secure daily movement of the bowels.

31st. Pulse 78; temp. 98.8°. Feces show presence of free bile. Urine free from bile. Dressings soiled with bile. Jaundice almost entirely gone. Pain, tenderness and slight enlargement of parotid gland on left side.

February 2. 12 M., pulse 78; temp. 98.5°. Dressings slightly tinged with bile. Daily movement of bowels, feces loaded with bile. Urine normal. Pain and tenderness of parotid gland subsiding. Patient cheerful and bright. Removed sutures. Perfect union of incision except small fistulous opening.

4th. Pulse 72; temp. 98.5°. No discharge through wound. Free bilious evacuations. Pain in parotid gland almost entirely gone.

17th. Pulse 78; temp. 98.5°. Perfect union of wound.

24th. No jaundice. Improved in flesh and strength. Gradually resuming her household duties. No pain or enlargement in right hypochondriac region, etc.

The above cases seem clearly to indicate that liver hemorrhage, so much dreaded hitherto, is amenable to pressure applied directly upon

the bleeding surface, in that regard resembling the kidney, the subject of so much brilliant surgery within the past few years.

The method adopted of opening the parietal peritoneum, separating the edges, and sewing them to the liver, shuts off a corresponding area of that viscus from the general peritoneal cavity, and exposes it to the surgeon for treatment as any other external surface of the body. In stab or gunshot wounds of the liver, it is easy to see how this procedure affords a means of arresting hemorrhage, and provides a method of continuous drainage; so also in contusion or crush of the liver, and other pathological conditions not necessary to enumerate. So easy is the operation of performance, and so rapidly is a portion of the liver rendered extraperitoneal that it may even be of use as a diagnostic measure.

REPORT OF THIRTY-ONE CASES OF HEAT FEVER TREATED AT THE PENNSYLVANIA HOSPITAL DURING THE SUMMER OF 1887.

BY F. A. PACKARD, M.D.,

RESIDENT IN THE PENNSYLVANIA HOSPITAL.

IN reporting the following cases of heat fever, I desire to acknowledge the courtesy of my former chief, Dr. James H. Hutchinson, in permitting me to publish them, and to state that no claim is made to any novelty in the matter of treatment, but that my object is simply to present the cases in tabulated form with the chief symptoms exhibited. Some endeavor has been made to determine, if possible, the predisposing and exciting causes of the attack, and to learn the present physical condition of so many of the cases as could be reached personally or by letter.

This summary of cases does not include those treated on the female side of the house.

A few of the cases are reported somewhat more in detail, not only to indicate more readily the general mode of treatment adopted, but also to bring out some features in these cases of more than usual interest.

Except in Cases I., II., IV., V., and VI. the temperature was taken in the rectum, as being a more definite index, and because the process of cooling the body manifestly interfered with the value of the cutaneous temperature as a register of the body heat.

The cases were all treated under a canvas roof, covering over a portion of the hospital yard. This was found to be a great convenience, and of benefit both to patients and attendants. As the yard is paved with artificial stone, and could consequently be kept cool by liberal use of the

hose, there was a much less impeded circulation of air under the canvas than could have been obtained in a ward, and the cases were removed from the unavoidable bustle and constant motion present in the general receiving ward. Adding to this the fact that practically no time at all elapsed between their arrival in ambulance or police patrol wagon and the institution of treatment, the advantages of the temporary ward are apparent.

Almost without exception the cases were brought to the hospital either on the hospital ambulance or on the police patrol wagons, and were usually rubbed with ice on the way up to the hospital. The patrol crews soon learned how to diagnose and temporarily to treat sunstroke, and on only one occasion was a patient rubbed with ice who was not a fit subject for such treatment. This preliminary icing undoubtedly was of value to the patients as saving time, and it probably kept the temperature record in the cases at a lower average than it would otherwise have attained.

As soon as a patient with heat fever was brought to the hospital he was placed on a waterproof fracture-bed, his clothing removed as rapidly as possible, a thermometer introduced into the rectum, and ice packed about the body and extremities. Usually at the outset, m , xv or xx of *tr. digitalis* were administered hypodermatically. The thermometer was removed every seven minutes, the icing being continued until the rectal temperature fell to 104° F. The patient was then dried and put on a clean bed, with an ice-cap to his head, and in favorable cases the temperature gradually fell to normal. It was found that, if the icing were continued after the rectal temperature had fallen below 104° F., there was apt to be too rapid and great a fall, so that the application of external heat and free stimulation were required—a state of affairs certainly undesirable.

The above is an outline of the general mode of treatment adopted in the cases with temperature exceeding $106\frac{2}{3}^{\circ}$ F. Those cases with a temperature below that point were stripped and liberally sponged with a mixture of one part of alcohol and four parts of iced water, an ice-cap being applied to the head. If the temperature were not above 106° F., this was always found to be sufficiently active treatment. Subsequent elevations of temperature occurring after primary reduction were treated after the manner indicated above. In but a few cases were any other antipyretic measures adopted.

Other means of treatment were employed to meet individual symptoms in various cases. Where convulsions were present after the temperature had been lowered to a considerable extent, morphia was employed, usually with good effect. In the favorable cases respiration and pulse both improved in character with the fall of temperature, but, if they did not do so, bleeding was employed in spite of the feeble pulse, and was almost

TABLE OF CASES.

Number of case.	Age.	Nativity and Occupation.	Habits.	Date and time of admission.	Cause.	Time of onset of symptoms.	Temperature on admission.	Cerebral condition.	State of pupils.
1	40	Hungarian laborer	Unknown	June 21 3.30 p. m.	Sun	2.45 p. m.	103.4°F	Partially conscious	Natural
2	59	Ireland laborer	Unknown	June 21 1 p. m.	Sun	12.30 p. m.	103.4	Unconscious	Contracted
3	50	Switzerland waiter	Intemperate	July 1 9 45 p. m.	Heat	9.25 p. m.	112	Comatose	Contracted
4	33	Ireland coal heaver	Moderate drinker	July 7 3 p. m.	Sun	2.15 p. m.	102	Partially conscious	Natural
5	68	Ireland printer	Moderate	July 9 2.50 a. m.	Heat	2.20 a. m.	108	Unconscious	Contracted
6	23	Philadelphia baker	Unknown	July 9 6 a. m.	Heat	5.40 a. m.	108	Unconscious	Contracted
7	63	Ireland laborer	Moderate	July 16 2.20 p. m.	Sun	Shortly before admission	108	Unconscious	Contracted
8	22	Ireland baker	Moderate	July 16 12 m.	Heat and sun	Shortly before admission	110	Comatose	Contracted
9	?	? baker	Unknown	July 17 9.10 p. m.	Heat	Shortly before admission	110	Comatose	Contracted
10	44	Germany baker	Unknown	July 18 2.15 a. m.	Heat	Shortly before admission	110	Comatose	Contracted
11	40	Germany sugar refiner	Unknown	July 18 12 m.	Heat	Shortly before admission	110	Unconscious	Contracted
12	62	Ireland laborer	Hard drinker	July 18 5 p. m.	Unknown.	Shortly before admission	106	Conscious	Sluggish
13	29	Ireland teamster	Hard drinker	July 18 12.30 p. m.	Sun	Shortly before admission	110	Unconscious	Contracted
14	21	Scotland unknown	Unknown	July 18 11.30 a. m.	Sun	Shortly before admission	111	Unconscious	Contracted
15	22	Ireland iron founder	Temperate	July 18 7 p. m.	Sun	Shortly before admission	106	Conscious and delirious	Natural
16	22	Ireland street paver	Intemperate	July 18 5 p. m.	Sun	Shortly before admission	105	Conscious and delirious	Natural
17	39	England carpenter	Hard drinker	July 18 7.30 p. m.	Sun	8-10 hours before admission	100	Conscious and dull.	Slightly contracted
18	37	England laborer in street	Hard drinker	July 18 9.30 p. m.	Sun	2 p. m.	110	Unconscious	Dilated
19	21	Ireland street paver	Unknown	July 27 4 p. m.	Sun	Shortly before admission	106.4	Delirious	Contracted
20	37	Germany sugar refiner	Unknown	July 28 12.30 p. m.	Heat	Shortly before admission	106	Semi-conscious	Contracted
21	20	Newfoundland bat finisher	Unknown	July 29 12.45 p. m.	Heat	Shortly before admission	106	Semi-conscious	Natural
22	36	Philadelphia roofer	Moderate	July 29 7.45 p. m.	Sun	Several hours	101	Dull but conscious	Natural
23	60	Ireland laborer	Unknown	July 30 9.45 a. m.	Sun	Shortly before admission	108.2	Unconscious	Contracted
24	80	Germany farmer	Unknown	July 30 12.30 p. m.	Sun	Shortly before admission	106.2	Conscious	Contracted
25	28	Ireland brick-maker	Unknown	July 30 4.30 p. m.	Sun	Shortly before admission	105.2	Unconscious	Contracted
26	22	Scotland, grocer	Unknown	July 30 12.30 p. m.	Sun	Shortly before admission	109	Unconscious	Contracted
27	50	Ireland book-keeper	Hard drinker	July 30 5.30 p. m.	Heat	One hour before.	110	Unconscious	Contracted
28	45	Germany sugar refiner	Unknown	July 31 3.30 a. m.	Heat	Some time before admission	108	Unconscious	Contracted
29	35	Ireland driver	Hard drinker	July 31 3.30 p. m.	Sun	Shortly before admission	109	Unconscious	Contracted
30	26	Ireland laborer	Unknown	July 31 11.45 p. m.	Sun	Prodromes for 3 days, unconscious for 7½ hours before admission	109	Unconscious	Contracted
31	26	Philadelphia liquor dealer	Temperate (?)	Aug. 1 3.45 p. m.	Sun	Shortly before admission	109	Unconscious	Contracted

TABLE OF CASES.

Convulsions.	Pulse.	Respiration.	Diarrhoea.	Treatment.	Effect on temperature.	Subsequent rise in temperature.	Result.	Time and cause of death.
Slight	Full and bounding	Rapid	Absent	Sponging	100° in 10 min.	None	Cure	
None	Full and bounding	Noisy	Present	Sponging.	100° in 15 min.	None	Cure	
Marked	Full and bounding	Stertorous	Present	Ice bath	99° in 2¾ hrs	100° at 4 a. m.	Death	15 hours after admission, cerebral and pulmonary congestion.
None	Full and strong	Grunting	Absent	Sponging.	100° shortly	None	Cure	
None	Rapid and compressible.	Stertorous	Present	Iced	101° in 30 min.	None	Cure	
None	Full and bounding	Stertorous	Present	Iced	101° in 20 min.	None	Cure	
None	Weak	Puffing	Absent	Iced	99° in 55 min.	102.6° at 5.40 p. m.	Cure	
None	Pulseless at wrist	Stertorous	Present	Iced	96°	105° at 4.45 p. m.	Cure	
Marked	Pulseless at wrist	Stertorous	Absent	Iced	101° in 1½ hrs.	103° in 2 hrs.	Death	5½ hours after admission, cardiac and respiratory failure
Absent	Pulseless at wrist	Stertorous	Present	Iced	103° in 20 min.	Slight	Death	10 hours after admission, cardiac and respiratory failure.
Present	Very weak	Stertorous	Present	Iced	104° shortly	Slight	Death	8 days after admission, from cholemia
Slight	Poor	Hurried	Present	Iced	102° in 10 min.	None	Cure	
Marked	Very feeble	Labored	Present	Iced	104° in 15 min	108° at 8 p. m.	Death	34½ hrs. after admission from exhaustion caused by delirium tremens.
Absent	Pulseless	Gasping	Absent	Iced	None	.....	Death	
Absent	Full and bounding	Hurried	Absent	Sponged	101° shortly	None	Cure	
Absent	Full and strong	Hurried	Absent	Sponged	98° shortly	None	Cure	
Absent	Natural	Natural	Absent	Ice cap	.....	None	Cure	
Present	Pulseless at wrist	Stertorous	Present	Iced	104° in 20 min.	106° at 11.30 p. m. July 19	Death	3 days after admission from meningitis.
Absent	Full and bounding	Hurried	Absent	Sponged	103.8° in 10 min.	None	Cure	
Absent	Bounding	Noisy	Absent	Sponged	102.6° in 10 min.	None	Cure	
Absent	Bounding	Rapid	Absent	Sponged	101° shortly	None	Cure	
Absent	Full and rapid	Quiet	Absent	Ice cap	None	None	Cure	
Absent	Pulseless at wrist	Stertorous	Present	Iced	102° in 15 min.	None	Cure	
Absent	Rapid	Grunting	Absent	Sponged	101° shortly	None	Cure	
Absent	Pulseless at wrist	Stertorous	Absent	Iced	104° shortly	None	Death	3 hours after admission from emphysema of larynx.
Absent	Pulseless at wrist	Shallow and noisy	Absent	Iced	104.4° in 5 min.	None	Cure	
Absent	Pulseless at wrist	Stertorous	Present	Iced	103° at 6.30 p. m.	106° at 8.30 a. m. 106° at 4.30 p. m.	Death	15 hours after admission from edema of lungs.
Present	Pulseless at wrist	Stertorous	Present	Iced	104° in 30 min.	None	Death	5½ hours after admission from cardiac and respiratory failure.
Absent	Pulseless at wrist	Noisy	Present	Iced	99° shortly	None	Death	2¾ hours after admission following delirium.
Absent	Almost pulseless	Stertorous	Absent	Iced	104° in 15 min.	106° at 2.30 p. m.	Death	11¾ hours after admission from failure of respiration.
Absent	Very weak	Stertorous	Absent	.....	103.4° in 20 min.	None	Cure	

invariably followed by quieter, fuller respirations, with a soft, steady pulse.

A word in regard to the use of bleeding. When the face was congested or livid, the capillary circulation over the whole body obstructed, the heart, as determined by auscultation, laboring to force the blood around the vascular circle, the breathing shallow and stertorous, the contracted pupils with other evidences of obstructed venous circulation in the brain present, the evident indication was to empty the overloaded veins of the blood that was stagnating in them and so embarrassing both respiration and circulation. Wet-cupping behind the ears was always first tried, but it was in almost every case impossible to withdraw more than a few thick black drops of intensely altered blood, even when crucial incisions with a bistoury were added to the smaller incisions of the scarificator. In no case where it was attempted could enough blood be withdrawn by this means to affect either the general or cerebral circulation. Bleeding from the median basilic vein was then, if deemed necessary, employed, and even with this free outlet the blood did not flow, but had to be squeezed up from the hand, issuing then in thick, black jets and ceasing so soon as upward pressure with the hand was discontinued. After the withdrawal by this means of from twelve to sixteen ounces of blood there was usually marked improvement in circulation, respiration, and color, with, in some cases, complete or partial return of consciousness.

I regret very much that there was not time to make a somewhat more extended study of some of the conditions present, as by ophthalmoscopic examination of eye-grounds, and by examination of the blood, urine, and stools. The blood has received careful study at other hands, but I should have desired to examine the urine and fecal discharges, in order if possible to determine to what extent the high temperature had affected the kidneys and intestinal canal with its related glands.

For lack of time, owing to the rapid succession of the cases, I was also unable to keep as full records as I should have desired.

Taking up each heading of the preceding table in order, it will be seen that the youngest patient was twenty years of age, the oldest eighty, the decade containing the greatest number being that between twenty and thirty years, in which there were 10 cases. All of the patients received were white. There were native of Ireland 15, of Germany 5, of the United States 3, of Scotland and England each 2, of Hungaria, Switzerland, and Newfoundland, each 1.

By occupation there were 5 laborers, 4 bakers, 3 street pavers, and 3 workers in a sugar refinery. All of these are typical occupations for the production of heat fever. There were, however, others engaged in occupations ordinarily deemed safe so far as exposure to excessive heat is concerned, markedly seen in Case III., who was a waiter in a most comfortable club-room without exposure to other causes than the warmth

of the dining-room and his exertions at waiting (but he was a native of Switzerland and had been but a short time in this country).

In regard to the alcoholic habit accuracy is impossible, but 11 confessed (or it was confessed for them) that they were hard drinkers, 2 denied any use of alcohol, while in 18 the point could not be ascertained.

More cases were received on July 18th than on any other day, the number being 9, the next in order being July 30th, on which 3 cases were received, the next July 31st, on which day there were admitted 3 cases.

The following table of the thermometer and barometer readings, with the accompanying remarks on the weather on the days when the cases were received, is taken from the register of the hospital, and represents a fair mean of the two over most parts of the city. The thermometer reading is always in the shade.

Date.	Thermometer.		Barometer.			Remarks.
	Max.	Min.	8 a. m.	2 p. m.	8 p. m.	
June 21, 1887	92°	70°	30.14	30.09	30.03	Mostly clear; thunderstorm at night.
July 1, "	91.5	67	30.40	30.34	30.30	Clear.
July 7, "	90	74	30.19	30.10	30.09	Clear, and later cloudy.
July 9, "	80	72	30.09	30.05	30.00	Cloudy; light shower in afternoon.
July 16, "	100.5	71	30.23	.....	30.08	Clear.
July 17, "	95.5	76.5	30.14	30.10	30.08	Partly clear and cloudy.
July 18, "	96	77.5	30.07	30.05	30.09	Clear.
July 27, "	89	72	30.25	30.21	30.20	Partly clear and cloudy.
July 28, "	90	72	30.26	30.19	30.17	Mostly clear.
July 29, "	91	73	30.22	30.18	30.18	Mostly clear.
July 30, "	90.5	75.5	30.26	30.21	30.20	Thunderstorm and rain in afternoon and evening.
July 31, "	93	75	30.21	30.13	30.17	Thunderstorm at night.
Aug. 1, "	87.5	72	30.20	30.14	30.14	Mostly cloudy.

The greatest number of cases was admitted between noon and 6 P.M., being 16 out of 31; 3, however, were admitted between midnight and 6 A. M., all of them being engaged in highly heated apartments.

In 19 of the cases the heat producing the attack was solar, in 11 it was artificial, while in 2 both factors were at work.

As will be seen by reference to the table, the length of time elapsing between the onset of symptoms and admission to the hospital was a manifest factor in determining the effect of treatment.

The highest temperature attained was 112° F., more of the cases having temperatures of 110°–111°, than between any other two degrees.

20 of the cases were unconscious, 8 were conscious, 3 were partially

conscious, while 4 were wildly delirious (this does not include those who became delirious on passing out of coma on the reduction of temperature). Consciousness was maintained in every case where the temperature was below 108° F., except in Case II., where the temperature was but $103\frac{2}{3}^{\circ}$ F., the patient, however, soon recovering consciousness.

The pupils in 24 of the cases were extremely contracted, in 5 they were natural, in 1 they were sluggish, while in 1 they were dilated. Where the pupils were contracted there was also present unconsciousness except in 3 cases, and in these the temperature was 106° or over. The case in which the pupils were dilated is presented more in detail below. Convulsions occurred in but 6 cases, while partial convulsions occurred in 2. In none were the convulsions truly epileptiform, but usually consisted in tonic contraction with rapid clonic spasms, at intervals much intensified. The presence of convulsions always indicated a greater degree of gravity. In one case (XI.) a tetanoid condition was persistent for some time after return to consciousness and subsidence of other symptoms.

The state of the pulse varied much in the different cases, being almost invariably absent at the wrist where the temperature reached 108° F. or over, and being changed from the normal in direct ratio with the severity of the other symptoms.

Respiration, as would have been expected, with the moderately elevated temperatures was accelerated, with the higher temperatures varying from noisy and rattling to typically stertorous. The respirations in Case XIV. were gasping from impending dissolution. No cases presented Cheyne-Stokes respiration, although a few of the worst cases showed some intermitting of respiration in part of their course. Almost all of the fatal cases presented signs of intense pulmonary congestion.

The color of the face varied from flushed, in the lighter cases, to livid and mottled in the cases with marked alteration in respiration and circulation. The tendency to mottling, almost petechial in character, was very frequently seen, being intensified by the direct application of ice.

Diarrhœa (*i. e.*, involuntary evacuation of liquid offensive stools with greenish-brown flocculi) was present in many of the cases having much elevation of temperature, and presented the typical mousy, repulsive odor described by many authors.

The characteristic penetrating odor (irrespective of that due to feces) was present in all but one of the cases whose temperature reached 108° F.

The longest time required to reduce the temperature to within safe limits was one hour, the average time being from ten to fifteen minutes. The result of the case could almost be predicted by the facility or difficulty experienced in reducing the temperature.

In 12 cases subsequent rise of temperature occurred, in a few several spongings with alcohol and iced water being required before the temperature became permanently reduced.

The mortality in the whole series was 12 out of 31, including the case (XIV.) that died almost immediately after admission, one which proved fatal several days later through cholæmia, and one that died of meningitis. It also includes two cases of consecutive delirium tremens, although one of these cases (No. XXIX.) died within so short a time after the development of his delirium that it is only fair to call it a death from sunstroke.

The manner of death was, as a rule, by almost simultaneous cardiac and respiratory failure. The lowest initial temperature followed by death was 108° F.

CASE II.—On the morning after his admission to the hospital remembered nothing concerning his condition or surroundings from the time "when the sun felt hot" until he awoke on the next morning at the hospital. He had been overcome by the heat on two or three previous occasions, one of his attacks resembling, so far as he could judge, the present one.

CASE III.—H. M., æt. fifty, waiter in a private club. Born in Switzerland. Was but a short time in America, having lived for the past few years in England. He was brought to the hospital in the ambulance at 9.45 P. M., having fallen unconscious while waiting at table. He was, when seen, unconscious, with stertorous breathing, pulseless at wrist, with contracted pupils, livid and blotchy facial appearance, and presented the typical mousy odor, together with that due to a profuse semi-liquid bowel movement. The thermometer in the rectum registered 112° F. He was put in an iced-water bath, and was kept in it for about forty-five minutes, at which time his temperature had fallen to 101° F. in the rectum. No change, apart from the reduction of temperature, was appreciable as a result of treatment. Tr. digitalis was freely administered hypodermatically, without any marked improvement of circulation. At 1 A. M. f $\frac{3}{4}$ ij of blood were with great difficulty withdrawn by cut-cupping over the right mastoid. His temperature dropped to subnormal and remained so until 2 A. M., when it rapidly rose to 104° F. He was then given an enema containing acetanilide grs. viij. The seemed to have slight, if any effect, the fever rising steadily until his death at 4 A. M., his temperature shortly before that time having reached 109° F. in the axilla.

CASE VIII.—Wm. McC., white, æt. twenty-two, native of Ireland, having been in this country for fifteen months. Until shortly before his attack he had been keeping books, but for the previous two or three days had been working in a bakery. An attack of diarrhœa began one week before his admission to the hospital, reducing his strength considerably. On the morning of his admission he left the bake-house on account of his sufferings from the necessarily high temperature, and while walking along the street fell unconscious. He was sponged about the face and chest with iced water, by a physician, for about a half hour before the ambulance was summoned. On reaching him he was absolutely unconscious and relaxed, lying in a pool of vomited material,

his face livid and mottled, lips blue, respiration stertorous. On the road to the hospital he was stripped and rubbed with a block of ice. After his arrival at the hospital the usual treatment was adopted, the rectal temperature reaching 110° F. after five minutes of icing. This was at 11.50 A.M. While on the rubber bed he had two profuse characteristic movements of the bowels.

On his admission he was pulseless at the wrist, this condition not being affected by tr. digitalis \mathfrak{m}_{xxx} , hypodermatically. Icing was continued until 12.30 P.M. (forty minutes), when his rectal temperature reached $104\frac{4}{5}^{\circ}$ F. He was then put in a dry bed, and an ice cap applied to his head. His temperature shortly fell to 93° F. in axilla, 96° F. in rectum; on which account external heat and stimulation were employed. His breathing had improved, but he was still unconscious with contracted pupils and small pulse. At 2.40 P.M. the axillary temperature reached $99\frac{4}{5}^{\circ}$ F., and the external heat was withdrawn. At 3.20 P.M. he opened his eyes, coughed and vomited, these being the first signs of returning consciousness exhibited. He soon went through a series of fantastic voluntary movements, but could not be made to answer questions. At 3.45 P.M. he gave his name and address. His temperature rising rapidly, at 4 P.M. he was given acetanilide, grs. vj, by mouth. At 4.50 P.M. his temperature having risen to 105° in the axilla, he was sponged with alcohol one part and iced water four parts. This process of sponging had to be twice repeated, the last time being at 8 P.M. He slept somewhat through the night, his temperature ranging from 99° to 100° F. Catheterization had to be employed but once.

The note of his condition on the next day (July 17th) states that it was favorable, but that there had appeared through the night several purpuric spots on the abdomen and arms.

Nothing of note occurred thereafter until his discharge, except that on the evening of July 20th he became somewhat delirious, but soon became rational again, and that for a while he suffered from slight vertical headache. His mental acumen was not very marked during his residence in the hospital, but had probably never been very highly developed. [This case was heard from lately, and states that since his attack he has had impairment of both memory and eyesight. He did not keep his promise to return for further examination.]

CASE IX. was one of the worst of the series. There was profuse discharge of dark, thick blood from the nostrils, there were severe long-continuing convulsions, uncontrollable by morphia or musk, and his temperature persistently rose so soon as treatment by icing was discontinued for more than a few minutes. He had been iced on the way up to the hospital on the police patrol wagon.

CASE X.—This case, beside the cerebral symptoms, showed very marked disturbance of respiration. For ten minutes before death actually occurred artificial respiration was practised, the heart sounds being meanwhile feebly audible. On the cessation of cardiac action a hypodermatic needle was thrust into the heart, and twenty minims of aromatic spirits of ammonia injected. This aroused two or three barely audible fluttering contractions preceding final arrest.

CASE XI. was brought to the hospital on the ambulance at 12 noon of July 18th, having been working in a sugar refinery, where he had fallen unconscious. He was rubbed with ice at the refinery, and this was continued on the ambulance. He was a native of Germany,

having been but a short time in this country. On admission, he was unconscious, with minutely contracted pupils, stertorous breathing, feeble pulse, hot, dry skin, and a rectal temperature of 111° F. The flexor muscles of his extremities were in a state of tetanic contraction. He was rubbed with ice until his rectal temperature fell to 104° F. He was then put on a dry bed and an ice cap applied. There still persisted the tetanoid condition, with which his facial expression was in keeping. In addition to the tonic contraction there were occasional slightly marked clonic spasms. The symptoms shortly passed off, the tetanoid condition being persistent even after partial return to consciousness. On the next day his general condition was favorable, but the tongue was much coated, and he complained of a slight amount of lightness in his head. During the night of July 20th he had diarrhœa, and on the morning of the 21st jaundice declared itself. He was given calomel in fractional doses, with bismuth. The urine was examined on that day, and the following conditions were noted: Amber in color, very cloudy, and frothing freely when shaken, very acid, specific gravity 1019, albumin (about $\frac{1}{6}$), no sugar. Microscopic examination of the sediment revealed numbers of granular cells from kidney and bladder, with coarse granular casts.

On the 22d, the jaundice became more marked, contraction of the pupils, slight retraction of the head, and drowsiness being superadded. On the 23d, hiccough appeared, which was finally controlled by a suppository containing seven grains of musk. On the 24th, his condition was slightly better, but the jaundice was steadily increasing. The first signs of pytalism having appeared, small doses of taraxacum were substituted for the calomel. Dry cupping and poultices were freely used over the hepatic region, with no apparent benefit. The jaundice steadily increased, and after stupor for a period of about twenty-four hours, death occurred.

Post-mortem held four hours after death, revealed marked staining of all the tissues with bile, slight opacity of arachnoid and pia mater, marked enlargement of the liver, with swelling of the parenchyma, which was of a peculiar grayish color, great congestion and swelling of the kidneys. The blood was fluid.

CASE XIII. had been on a debauch for two weeks up to the night before his attack. He presented the symptoms of a grave case of heat fever, being constantly in a mildly convulsed state. This condition of convulsion continuing after the reduction of temperature, cut-cupping behind the ear was attempted, but failed. Fourteen ounces of blood were then *pushed* out of the median basilic vein. The effect of this measure was almost startling. The cyanosed face became clear, the embarrassed breathing fuller, and the pulse became not only perceptible but soft and steady. Consciousness also returned, and it was hoped that recovery would ensue, but delirium supervened upon a period of quiet sleep, and physical restraint became necessary. The temperature rose three times after the first reduction, the last rise being to 108° F. at 8 P.M. on the night before death, which occurred at 11 P.M. July 19th, his condition during the whole of that day being that of a typical violent subject of delirium tremens. (On the day of admission examination of the urine showed it to be amber-colored, clear, very acid, of a specific gravity of 1017, and containing about one-sixth of albumen, with a large urate sediment. The specimen, unfortunately, soon became decomposed,

and when microscopical examination was attempted the whole field was occupied by microorganisms.)

CASE XIV. died during the act of vomiting, almost immediately after admission, and before treatment could be instituted, the thermometer by actual count, having been in the rectum five minutes, and even then registering 111° F.

CASE XVII was a relic. Having been drinking hard for two or three weeks, he, on the morning of the day of his admission, fell unconscious, and was treated by a physician "*secundum artem*," as a case of sun-stroke. The patient's son stated that the physician told them that his father's temperature was 110° . This, of course, is unreliable information.

CASE XVIII. was an Englishman, being a recent immigrant. His previous occupation was that of a clerk, but, having lost his position through his intemperate habits, he had been working for several days in digging a deep trench in the street. He had been much depressed mentally for several days, and had been drinking very freely every night, according to his wife's statement. On the morning of July 18th he was working in the trench until 2 P.M., when he became unconscious, and was removed to his home, where a physician saw him and prescribed rubbing with ice. From lack of assistance his wife soon had to cease working with him, and at 9.30 P.M. he was brought to the hospital in the ambulance. His condition was noted at that time as follows: Unconscious, with stertorous breathing, flushed face, hot and dry skin; rectal temperature 110° F.; arms, forearms, wrist, and fingers, strongly flexed, and toes pointed and rigid; muscles of back and neck strongly contracted; pupils *dilated* and equal, retinal and conjunctival reflexes preserved. He was rubbed with ice, but no improvement followed the reduction of temperature. The temperature remained at 102° F., or over, during the whole course of the case, with a rise to 106° F. twenty-six hours after admission. On the 20th, the pupils became contracted, andunctions of mercury were given. He lay in a state of coma, with rigid flexion as described above, until his death at 8 A.M., July 22d (four days after admission).

Post-mortem held six hours after death. There was moderate rigor mortis, and marked superficial hypostatic congestion. The veins of the spinal dura and pia were full of dark blood, and the substance of the cervical cord was congested. The membranes of the brain were much congested with an area of hemorrhage beneath the pia mater at the base over the pons and posterior perforated space. The arachnoid and pia were opaque, with white lines streaking the latter. Nothing was revealed by section of the brain substance. The liver was large, soft, and pale, the kidneys large, with swollen parenchyma, and the spleen large, moderately soft, and of a grayish-red color.

CASES XIX., XX., XXI., and XXIII. had been rubbed with ice on the way to the hospital.

CASE XXII. was a relic. He was putting on a tin roof when, early in the afternoon, he became unconscious and was treated by Dr. Malatesta, who has kindly given me a brief account of the case prior to his admission to the hospital. His temperature was $106\frac{2}{3}^{\circ}$ F. when first seen by Dr. Malatesta. He was unconscious, and presented other symptoms of heat fever. He was rubbed with ice until consciousness returned, when it was deemed advisable to remove him to the hospital. On his

admission he was in precisely the condition of one recovering from a moderately severe attack of heat fever.

CASE XXV. had been but a short time in this country; when attacked he was working in a brick-yard. He presented the usual symptoms of a bad case of heat fever, the rectal temperature being $109\frac{1}{2}^{\circ}$ F. The temperature was reduced without much difficulty. His symptoms, apart from the excessive heat, remaining unaltered, he was bled from the median basilic vein to the extent of twelve ounces, with marked improvement of the pulse, but no amelioration of his other symptoms. Two and a half hours after admission he developed cellular emphysema, first evidenced by puffiness of the left eyelid; but soon spreading to face, neck, and chest, with rapid involvement of the larynx, which produced fatal asphyxia before the trachea could be opened. No cause could be found for the development of this complication, although an autopsy might have given an explanation.

CASE XXVI. was one in which recovery occurred without a single flaw in the regular and orderly recession of symptoms, and forcibly points to the fact that high body heat alone is capable of producing all of the phenomena of the disease, since with the lowering of temperature all symptoms vanished.

CASE XXVII. is of interest from the fact that he had been sunstruck previously, in 1862. He was employed as a bookkeeper, his place of business being in a small room at the top of a high building. He had been for a long time a hard drinker, having for the previous two weeks been on a prolonged debauch. Early on the morning of admission he complained of feeling ill, but did not become unconscious until 4.30 P. M. At 5.30 P. M. he was brought to the hospital on the police patrol wagon, having been rubbed with ice on the way. He was a large, fat man, and on admission presented the symptoms of a grave case of heat fever, the thermometer in the rectum registering 110° F. after ten minutes of icing. Tr. digitalis, $\mathfrak{m}\mathfrak{xv}$, with whiskey, hypodermatically were immediately given and icing was begun. At 6.30 P. M. icing was, for the first time, stopped, the rectal temperature at that time having reached 103° F.

After an hour and a half of practically fruitless work, his condition differing from that present before treatment was instituted only in the matter of temperature, cut-cupping over the mastoid was attempted, but only a few ounces of blood could be in this way withdrawn, and those only with the exercise of considerable patience. His breathing being extremely embarrassed, a large mustard poultice was applied over the chest and abdomen. Stimulants during the whole of this time were freely employed (chiefly in the form of carbonate of ammonium by suppository), the response to their action being very tardy. At 11.30 P. M. sixteen ounces of blood were abstracted from the median basilic vein. This steadied and strengthened the pulse, while the coma was somewhat alleviated and the pupils relaxed to a trifling extent. Respiration being much embarrassed—in part by the large amount of sero-sanguinolent material filling the air cells and occasionally welling out through the mouth and nose—he was given atropia sulph. gr. $\frac{1}{6}$, and cocain-hydrochlorat. gr. $\frac{1}{2}$, hypodermatically. This markedly improved the respirations, and in a short time produced almost complete disappearance of the bubbling, moist râles previously heard over the whole chest. At 3.30 A. M., and again at 4.30 A. M., his temperature reached 106° F., on

each occasion being reduced by icing. His heart gradually failed in spite of free stimulation until his death at 8.30 A. M., July 31st.

CASE XXVIII. had been for a long time rubbed with ice at the sugar refinery by a physician who stated that his temperature had been very much higher when he first saw him.

CASE XXIX. was a peculiar one. He was treated in the routine manner by icing, but was given in addition antipyrin, gr. xx, hypodermatically, with apparently good effect. After reduction of his temperature to 99° F., the pupils dilated somewhat, he became conscious, and, on questioning, said that he felt better. In a few minutes after that, he went into a typical condition of delirium tremens, shouting to his horses, etc. He was given potas. bromid., gr. xl, by rectum, without much effect, the delirium persisting until his death, from exhaustion, at 6.15 P. M. (two hours and forty-five minutes after his admission to the hospital).

CASE XXX. was brought to the hospital in the ambulance at 11.45 P. M., July 31st, seven and three-quarters hours after the occurrence of unconsciousness. His friends stated that his skin had been hot for the previous three days, and that on the third day before admission he had been unconscious for an uncertain but marked length of time. He presented the symptoms of marked heat fever, and received the usual treatment. In twenty-five minutes the rectal temperature reached 104° F. No effect on consciousness or respiration occurred coincidently with this reduction, but the pulse responded fairly well to stimulants. Through the night and following morning he remained unconscious with embarrassed respiration and contracted pupils, but at 11 A. M. (August 1st) he suddenly stopped breathing. Artificial respiration by the Sylvester method was practised for twenty-five minutes, the heart meanwhile being kept at work by repeated hypodermatics of ammonia and whiskey. At the end of that time cardiac action ceased.

CASE XXXI. resembled Case XXVI. in that nothing in the way of treatment was required beside the application of cold, except one hypodermatic injection of ten minims of tr. digitalis.

A word more in regard to the cause of death. The autopsies in Cases XI. and XVIII. showed marked parenchymatous changes of an acute character in the kidneys and liver. It is much to be regretted that, owing to the rapid succession of cases and to the difficulty in procuring permission from the coroner, but two autopsies could be made. It is, however, a fair deduction from the symptoms presented during life, that after death universal organic changes would have been found in the various organs as a result of the high temperature in the other cases.

No one organ or system could be named as the one solely responsible in itself for the symptoms produced or the death that occurred; even in Case XI. the liver being chiefly involved, but with heart and kidneys seriously altered in structure.

Death might, therefore, be stated to have been in most cases produced by a combination of the following causes: cerebral congestion, uræmia, marked alteration of the blood interfering with the due performance of its physiological functions, venous stagnation (in part resulting from

blood changes and in part from cardiac failure), respiratory and cardiac failure; the prime cause, of course, being the excessive amount of body heat, the others depending partly upon it and partly upon each other, forming to a certain extent a vicious circle. The blood, probably, was first altered in composition (semi-baked), causing impaired nutritive capacity with a tendency to stagnation from its viscosity. The renal capillaries became blocked up by the altered blood, thus cutting off the excretion of urea and its allies, which must have been formed in enormous quantity over and above that of health, from the rapid metamorphosis of tissue which it is reasonable to expect was occurring under the influence of the high temperature. Venous stagnation and vitiated blood, together with the changes in the cerebral tissue incident to the high temperature, produced the coma with the impairment of activity in the respiratory centre, while the latter, with venous stagnation and cardiac weakness, caused interference with respiration. Respiratory interference again reacted upon both the cerebrum and the heart. So, also, the heart, organically affected by the high temperature and functionally by the changes in other organs, kept the vicious circle revolving.

The secretions of the skin were markedly absent, and the intestinal tract also was greatly disturbed, as evidenced by the frequent occurrence of profuse discharges.

But a few of the cases could be traced after their departure from the hospital. Of those who were reached, Cases IV., V., VII., XXII., and XXIII. have had no sequelæ, while Case VIII. has had impairment of vision and memory.

ALCOHOLIC PARALYSIS.

BY C. W. SUCKLING, M.D. LOND., M.R.C.P.,

PHYSICIAN TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

THE earliest account of alcoholic paralysis is said to have been given by Dr. Jackson, of Boston, in 1822. Very little attention was given to Dr. Jackson's observations, which, however, were confirmed, in 1849, by Magnus Huss, of Stockholm. Dr. Wilks was one of the first British writers to draw attention to the frequency of paraplegia in inebriates, and he wrote, in the *Lancet*, on the subject fifteen years ago, and described it in his *Lectures on the Diseases of the Nervous System*, published in 1878. Since Dr. Wilks's papers alcoholic paralysis has been accurately described by numerous observers; and the lesion of the nervous system associated with this paralysis was proved by Lancereaux, in 1881, to be a multiple peripheral neuritis. Dreschfeld and Hadden, in this country,

have confirmed the discovery of Lancereaux, and it is certain that the paralysis in chronic alcoholism is due to changes in the peripheral nerves. Déjérine, Charcot, Hun, Buzzard, Handfield Jones, and Broadbent, have all reported cases, and have each added to our knowledge of the disease. As the result of the labors of these observers alcoholic paralysis is now acknowledged to be a definite malady with well-defined symptoms and pathology.

Dreschfeld (*Brain*, vol. vii.) divides alcoholic paralysis into two types: alcoholic ataxia and alcoholic paralysis proper.

Alcoholic ataxia occurs chiefly in man, and is by no means so frequently met with as is alcoholic paralysis. The symptoms greatly resemble those of locomotor ataxia, there being marked incoördination in the lower extremities, lancinating pains, and loss of knee-jerk, without paralysis or atrophy. In all cases in which there is loss of the knee-jerk and ataxia, alcoholism must be excluded before the diagnosis of tabes is arrived at.

In alcoholic ataxia there is usually a history of alcoholic excess, but the absence of this cannot be relied upon, for it is often concealed or denied; men, however, not being so deceitful in this respect as women.

Morning sickness and dyspepsia, or a history of hæmatemesis, would be strong evidence in favor of the alcoholic origin of the affection.

Mental symptoms, such as loss of memory and delirium, would be suggestive; but loss of memory and other mental symptoms are common in tabes.

In alcoholic ataxia we do not find myosis, or the Argyll-Robertson pupil, or joint affections, or visceral crises, but the knee-jerk is abolished.

In alcoholic ataxia there is generally some tenderness in the calf-muscles, which, when present, points strongly to the alcoholic nature of the affection. Moreover, any qualitative electrical changes would be decisive against tabes.

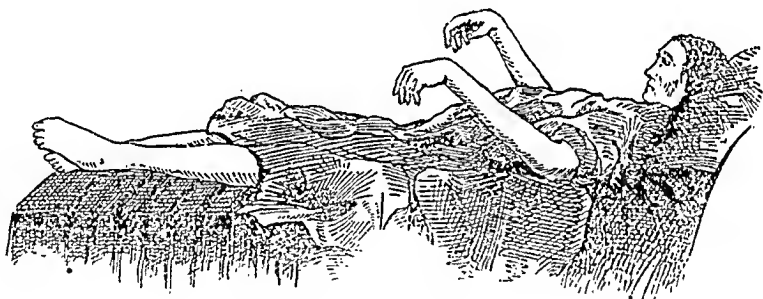
The symptoms in this form of alcoholic paralysis are due to a multiple neuritis, especially of the sensory nerves, and it differs from the second type in the absence, or, at any rate, in the extreme mildness of hyperæsthesia, hyperalgesia, paralysis, and atrophy.

The second type of alcoholic paralysis, *alcoholic paralysis proper*, is by far the most common, and it is met with in women far oftener than in men. The disease usually commences and progresses gradually, being subacute in its intensity, but the onset is occasionally acute, and attended with fever. Sensory disturbances are well marked, there being hyperæsthesia of the feet and legs, which, in severe cases, may be followed by anæsthesia and analgesia. The patient usually complains bitterly of "cramps" in the calf muscles and of lancinating pains. These sensory disorders are usually most marked in the lower extremities, but fre-

quently affect the upper limbs also. The calf-muscles are exquisitely tender when grasped, and this symptom is highly characteristic of the disease. Tenderness is, also, usually elicited by pressure applied along the course of the nerves of the lower extremities.

A remarkable perversion of the sense of temperature has been observed in the subjects of alcoholic paralysis, all objects in contact with the skin appearing cold; I have not observed this in the cases I have met with. The patient complains of weakness, or may be of absolute paralysis in the feet and legs, sometimes she is able to get about with a shuffling gait, being unable to pick her toes up properly, and, therefore, constantly tripping; in more advanced cases the patient lies in bed helpless, being unable to move her feet, but having still some slight power in the hands. The extensor muscles of the legs suffer earliest and to the greatest extent, the feet being drooped and flaccid, all power of dorsal flexion of the feet being usually lost. The knee-jerk is almost invariably, and the plantar reflex frequently, abolished.

The arms are affected later than the legs and to a much less degree; the extensor muscles here also suffering most, dropped wrist (see illustration) being occasionally, though by no means always, present.



Alcoholic paralysis.

The paralysis, though usually affecting only the extremities, and always commencing and being most severe in these parts, may, however, be general; and even when extensor paralysis alone is evident, careful examination shows that there is general muscular enfeeblement.

The cranial nerves are sometimes affected; in one of my cases the presence of squint together with vomiting led to the diagnosis of cerebral tumor.

Buzzard has met with paralysis of the soft palate, of the face, and also of the external rectus oculi; and Hadden has noticed nystagmus in alcoholic paralysis.

In one of my cases ophthalmoplegia externa was present, together with double optic neuritis. The common causes of ophthalmoplegia externa are locomotor ataxia, syphilis, diphtheria, and exposure to cold.

Though paralysis of the ocular muscles has been observed in chronic alcoholism, I am not aware that the condition to which the term ophthalmoplegia externa is applied has been met with, and its occurrence would seem to show that it may be produced by lesion of the nerves as well as by lesion of the nerve nuclei, alcoholic paralysis having been proved to depend upon peripheral neuritis.

The following case of chronic alcoholism with ophthalmoplegia externa and double optic neuritis is at present under my care :

J. B., a man, aged fifty, was admitted into the Birmingham Workhouse Infirmary on January 25th. His relatives state that he has been drinking heavily for some years, and my friend, Mr. Newton, who attended him before his admission into the Workhouse, tells me that he has been drinking for years, and that the drooping of the eyelids came on about a month before admission; the patient having complained some weeks previously of pains and cramps in his legs.

The patient on admission was incoherent, constantly asking for drink, and unable to tell where he was, or to give any account of himself. He was unable to raise his eyelids, there being drooping of both lids, the left being less affected than the right.

There was slight external strabismus of the right eye. He was unable to rotate his eyeballs either upward or downward, but could move them readily from side to side. The pupils were small, but responded to light and accommodation. There was a slight degree of optic neuritis, the disk on each side being blurred and the vessels very tortuous. The knee-jerk was lost on both sides, the plantar reflex increased. There was no paralysis of the legs or arms, but the calf-muscles were exquisitely tender on being grasped, and pressure along the course of the posterior tibial nerves elicited great pain.

He could point his toes and there was no marked weakness of the extensors of the wrist or leg. The first metatarsal bone was fractured and he said this was due to a chair falling on his foot. The muscles of the leg responded normally to faradism and galvanism. His memory was much affected and he did not know where he was.

He had no knowledge of time or place. When asked if he had been out he always responded in the affirmative, declaring that he had been several miles and that he had had several glasses of whiskey—in fact, he talked of nothing but drink.

He took his medicine readily on being told it was whiskey, though he thought the taste of it was "very peculiar." In fact, he thoroughly illustrates the truth of the proverb, "In vino veritas," his speech betraying his previous habits. Since admission he has much improved, being now able to open his eyes, the lids only drooping slightly. There is still considerable restriction of the movements of the eyeballs, but this is daily diminishing. The patient has had no alcohol since admission.

The paralyzed parts are always flaccid and atrophied, the degree of atrophy varying with the intensity of the neuritis. Contracture may occur, but is rare. The bladder and the rectum are rarely implicated. The faradic irritability in mild cases may be present in a normal degree, but is usually diminished and in severe cases is entirely abolished. The

galvanic irritability is increased and the contractions sluggish and prolonged, the reaction of degeneration being well marked in severe cases.

Vasomotor changes are usually present, the extremities being red and sometimes œdematous and occasionally presenting purpuric spots, but these changes and also trophic disturbances are always more marked in the lower than in the upper extremities. Bedsores do not occur except in the worst cases.

The skin of the hands and feet sometimes presents the glossy appearance first described by Paget, at other times it is harsh and dry. The nails are frequently affected, being curved, ridged, opaque, and brittle.

Mental symptoms are almost invariably present; the memory is impaired especially for recent events; the patient is emotional, suffers from insomnia, dreams, restlessness, delirium, and hebetude, together with digestive disturbances such as morning sickness and retching. Such symptoms occurring with ataxy or paralysis render the diagnosis of the nature of these two symptoms tolerably certain.

I have elsewhere corroborated an observation of Dr. Dreschfeld's, of a peculiar form of delirium present in the subjects of alcoholic paralysis. Dr. Dreschfeld noticed that the subjects of this disease, though unable to move, would say that they had been out walking, often an impossible distance. Since writing on this delusion I have had abundant evidence of the truth of his observation.

In one case I asked the patient, who was quite helpless, if she had been out, and she said that she had been in the garden that morning—the friends also told me that she was always saying she had been walking somewhere—this delusion alone decided me in my diagnosis, though I had at that time not been acquainted with her drinking habits. This peculiar delusion is met with in most cases of chronic alcoholism. I had a man recently under my care at the Birmingham Workhouse Infirmary dying of phthisis, who had severe multiple neuritis—both legs being completely paralyzed. He had been a heavy drinker and it is probable that both the lung mischief and the neuritis had been brought about by alcohol, though Pitres and Vaillard have proved that peripheral neuritis follows phthisis apart from alcoholism.

This man, when asked if he had been out, always answered in the affirmative, and would declare that he had just walked several miles, mentioning localities in the neighborhood which he had just visited.

Within the last few months I have been called to see three women suffering from well-marked alcoholic paralysis, and I have no doubt such cases are of common occurrence, and that they are often unrecognized.

In all of these cases the drinking habits of the patient were unknown to the medical man in attendance, and even when he had prohibited stimulants, the patient's friends had yielded to her importunity and

were supplying her with "spirits" up to the very day that I attended. They presented the usual symptoms of the disease; one had suffered from diplopia. I learned from their medical attendants that one died, but that the other two recovered. One patient could walk ten weeks after I saw her, though her gait was shuffling, and the knee-jerk still absent. Another had rapidly improved on the withdrawal of all alcohol, and though unable to stand when I saw her, in a few months she could walk. She soon had a relapse, which her doctor discovered to be due to her again taking alcohol. He tells me that he read the "riot act," and that she was soon able to walk about again. The patient who died was in the typhoid state and evidently too far gone to save. I fancy the abrupt discontinuance of the alcohol in this case may have accelerated death.

When the diagnosis is arrived at, nay, even when the disease is suspected, the patient's friends and attendants should be separately questioned, and search should be made in the patient's room, and even under the mattress and pillows of her bed for bottles or other evidence of her propensity.

The diagnosis is usually an easy one. The patient complains of pains and loss of power in her legs, the feet are drooped and flaccid, and she cannot point her toes upward. The power of dorsal flexion of the feet is diminished or absent. The grasp is feeble, but there is often no marked paralysis in the upper extremities.

Great pain is elicited if the calf muscles are grasped, and tenderness is present along the course of the nerve trunks, the patient complaining bitterly of cramps in the calf muscles.

It will be found that the knee-jerk is absent, and this is a most important symptom, as tabes is rare in women. Mental disturbance is always more or less present, there being usually considerable loss of memory, and the peculiar delusions already mentioned. The presence of sickness or retching in the morning is highly suggestive of the disease.

It must be remembered that in many cases no history of alcoholic excess is obtainable unless the medical man, from being sure of his diagnosis, insists on its alcoholic nature, so that the diagnosis at first must be made from the physical and mental state of the patient, the diagnosis required being first that the case is one of multiple peripheral neuritis, and then that the cause of this neuritis is alcoholic excess.

In well-marked cases the diagnosis of peripheral neuritis is very easy, the sensory disturbances and electrical changes showing that the lesion is one of the peripheral nerves, but in mild cases sensory alterations may not occur at all, for in neuritis of a mixed nerve the motor fibres always suffer most; frequently, also, the nerves are affected beyond the

points at which their sensory branches are given off, and thus motor symptoms alone are present though the nerve is a mixed one.

Moreover, there may be complete motor paralysis without any electrical changes; but the distribution of paralysis is always an anatomical one, the muscles paralyzed being in groups supplied by particular nerves, the anterior tibial being the nerves especially affected, and the paralysis is gradual in its onset and progressive. By these features we can distinguish even these mild cases of peripheral neuritis from lesions of the anterior cornua of gray matter of the cord, but there is no doubt that many cases which have been recorded under the name of "subacute general spinal paralysis," have really been cases of peripheral neuritis.

The medical man should ask himself, Is the case due to organic or functional causes? If organic, is it due to cerebral, spinal, or peripheral disease?

The absence of the knee-jerk alone is quite sufficient to prove that the paralysis is not hysterical—the knee-jerk is never absent in simple hysteria and its absence denotes a lesion somewhere in the reflex path which traverses the cord at the level of the second and third lumbar nerves.

In cerebral paralysis there are no electrical changes, sensation is usually unaffected, rigidity and not flaccidity is present with exaggeration and not abolition of the tendon reflexes, muscular wasting is not marked, nor are trophic changes usually present.

Should a squint be present in a case of alcoholic paralysis it is possible that the vomiting and delirium might lead to the diagnosis of cerebral tumor or other brain lesion as the cause of the paraplegia. But this mistake is a bad one and the patient would in all probability be sacrificed through it, for she would be allowed to go on taking stimulants until she died.

The following diseases of the spinal cord must be distinguished from peripheral neuritis.

1. Locomotor ataxia.
2. Poliomyelitis anterior acuta.
3. Myelitis.
4. Meningitis.
5. Subacute general spinal paralysis.
6. Acute ascending paralysis or Landry's disease.

It is highly probable that cases of neuritis due to alcohol or other cause have been diagnosed as cases of locomotor ataxia and their cure as that of this almost hopeless disease. Loss of the knee-jerk, pains, and ataxy are present in both diseases, but the pupil symptoms of tabes are not present in peripheral neuritis. Qualitative electrical changes would be decisive against tabes. Before the diagnosis of tabes is made peripheral neuritis must be carefully excluded.

In peripheral neuritis due to alcohol the case runs a far more rapid course than does a case of tabes, and paralysis is soon very evident, with drooping of the toes and tenderness of the calf muscles.

In lesions of the anterior cornua of the spinal cord, as in subacute general spinal paralysis, there are no sensory disturbances and the distribution of the paralysis is a physiological one, muscles functionally associated being paralyzed, while in peripheral neuritis the distribution of the paralysis is an anatomical one. In multiple neuritis the extensor muscles of the forearms are always the first muscles of the upper extremities to be affected and the trunk muscles escape, while in ascending paralysis, due to spinal cord disease, the trunk muscles become paralyzed after the legs, and when the paralysis spreads from the intercostal muscles to the upper extremities the intrinsic muscles of the hand (supplied by the first dorsal nerve) are always the first to be affected, the extensor muscles of the wrist and fingers (supplied by the seventh cervical nerve) being affected later as the lesion ascends the cord.

In spinal meningitis the symptoms are those peculiar to lesions of the peripheral nerves, the nerve roots being implicated, but severe pain in the back aggravated by movement with retraction of the head and muscular twitchings distinguish this disease from peripheral neuritis.

In Landry's disease there are no sensory disturbances and no electrical alterations.

In paraplegia due to myelitis bedsores, bladder and intestinal troubles are almost invariably present, while in peripheral neuritis these symptoms are of quite exceptional occurrence.

The prognosis in alcoholic paralysis is usually favorable, if the nature of the disease is detected early, and its cause removed; should the patient still continue to obtain alcohol, the case will end fatally, either from bedsores or from some associated diseases, phthisis, or cirrhosis of the liver, or by the production of the typhoid state. Gowers has observed death from rapid cardiac failure in two cases. Complete recovery may ensue after the disease has continued for a year.

It is only by the use of electricity that we can make an accurate prognosis of the duration of the paralysis in a given case. If the faradic response be lost, and the reaction of degeneration be present, then the paralysis is severe, and several months must elapse before recovery can ensue. The gravity is increased should the galvanic muscular irritability be greatly diminished, and should there be no irritability at all, then recovery cannot take place. Of course, these remarks apply only to the degree of neuritis present. The general condition of the patient must be taken into account in giving an opinion as to the patient's chance of recovery. The presence of jaundice, fever, delirium, phthisis, or cirrhosis of the liver renders the prognosis more grave. The time in

which recovery may ensue must always be reckoned in months. Twelve months frequently pass before recovery is complete.

In all cases it must be remembered that no improvement can take place unless the patient be prevented from obtaining drink, and all such patients should be watched, and deception must be expected and looked for. Rest in bed is necessary, and after acute symptoms have subsided galvanization of the affected nerves and muscles is useful. If there is much pain, hot fomentations and anodyne liniments are very useful. Cocaine may be applied locally or injected hypodermatically. Opium must be given with great care. Rubbing is of great value, particular attention being given to the extensor muscles of the toes, and by this means contracture of the calf-muscles is prevented, and recovery hastened.

Internally, iodide of potassium, with strychnia and iron, has seemed to do good in my cases. I consider strychnia a most valuable remedy in chronic alcoholism. The application of blisters and counter-irritants along the course of the nerve-trunks is also useful, but, of course, interferes with the rubbing, which I believe to be the most useful of all modes of treatment in this complaint. It is difficult to estimate the value of drugs in this disease, for probably the mere withdrawal of alcohol is quite sufficient for the cure of most cases.

A CASE OF ALCOHOLIC PARALYSIS,

IN WHICH MYALGIC PAINS AND TENDERNESS WERE ABSENT, AND IN WHICH THERE WAS VERY LITTLE DISTURBANCE OF THE CUTANEOUS (TACTILE) SENSIBILITY; WITH A REPORT OF THE MICROSCOPICAL APPEARANCES OF THE NERVES IN A CASE OF PERIPHERAL NEURITIS, AND PERFORATING ULCER OF THE FOOT, ASSOCIATED WITH DIABETES MELLITUS.

By BYROM BRAMWELL, M.D., F.R.S.E., F.R.C.P. EDIN.,

ASSISTANT PHYSICIAN TO THE EDINBURGH INFIRMARY; LECTURER ON THE PRINCIPLES AND PRACTICE OF MEDICINE IN THE EXTRA-ACADEMICAL SCHOOL OF MEDICINE, EDINBURGH.

SENSORY disturbances, more especially myalgic pains, muscular tenderness, and hyperæsthesia of the skin, are striking features in the great majority of cases of alcoholic paralysis. The following case is peculiar and exceptional inasmuch as myalgic pains and muscular tenderness were absent throughout its whole course, and that there was very slight evidence of any affection of the cutaneous (tactile) sensibility until the period of convalescence, when marked hyperæsthesia of the skin of the lower extremities was developed. The case is also interesting because

of the widespread distribution of the paralysis, and the presence of well-marked nystagmus and paralytic weakness of the muscles of the eyeballs.

The notes of the case are as follows :

Mrs. A., aged thirty, was seen by me in consultation with Dr. Halliday Croom on October 29, 1886, suffering from paralysis of the lower extremities.

Previous history.—The patient stated that when living in New Zealand, which she did for some years, she had a good deal of household work, and used at times to feel very tired ; there was never, however, any distinct paralysis until the voyage home, when she became unable to walk, and was laid up. The legs, she says, were stiff, painful, and contracted about the knees. This condition continued from March until July (1884), when she had improved so much that she could walk about without difficulty. She continued well for a year (until July, 1885), when her legs again became weak ; but she was able to walk with the help of a stick or her husband's arm until three weeks ago. She states that a month ago she walked three-quarters of a mile. Three weeks ago the paralysis rapidly increased, and she is now quite unable either to stand or walk. She gets very drunk at her menstrual periods, but is said to be steady between times ; there is no dysmenorrhœa.

Present condition.—Memory is obviously much impaired, and the patient is nervous and easily agitated. She is unable to stand or walk without assistance ; and even when supported on each side has great difficulty in getting across the room. She expresses great fear lest she should fall, and becomes much agitated and weeps when she is asked to try to stand by herself, crying out for help and convulsively clutching the nurse for support. (I may here state that I have observed this same sort of agitation, when the patient is asked to try to stand alone, in other cases of alcoholic paralysis, and that I attach considerable diagnostic importance to it.)

When she tries to walk, being supported on each side, the legs are thrown out in an uncertain way, and the toes are seen to droop. The muscles of the lower extremities are markedly atrophied ; the atrophy is perhaps worse in the thighs than below the knees ; the toes droop very perceptibly ; the extensor muscles on the front of the legs, and the extensors and flexors of the thighs are chiefly affected. There are no myalgic pains, and no muscular soreness or tenderness on pressure is complained of. There was no opportunity afforded of making an electrical examination of the affected muscles. The knee-jerk is completely absent in both legs. The plantar reflex seems lively on each side, but as the patient complains of uneasiness, not actual pain, when the blunt end of the tuning-fork (the instrument with which I am in the habit of testing the plantar reflex) was drawn across the sole, it is difficult to be sure of this point ; I am disposed to think that the movement of the foot which appeared to be reflex was, in part at least, voluntary.

The patient complains of some numbness in the lower extremities, but she can localize impressions perfectly ; there is distinct hyperæsthesia over the soles and lower extremities generally. The feet are slightly œdematous ; and she says the face and hands are also somewhat swollen. The bowels are regular ; the functions of the bladder natural, and the urine free from abnormal constituents. There is some loss of power and fine tremor in the muscles of the upper extremities, but there is no

distinct wrist-drop. Since the paralysis became worse, the patient has been unable to write; she says, too, that she cannot lift a glass of water to her mouth, partly because she is unable to grasp it firmly, partly because she fears she will let it fall. When the eyes are closed, the patient is able to touch the tip of the nose with the forefinger of either hand with fair precision and accuracy. No special or localized atrophy can be detected in the muscles of the upper limbs.

The pupils are of medium size, and contract both to light and accommodation. The action of all the recti muscles seems to be defective; when the patient is told to look far out, either to the right or left, lateral nystagmus-like movements occur.

The tongue is somewhat tremulous; speech is thick and somewhat drawling, so much so as to suggest the presence of distinct paralysis in the muscles of articulation; it is doubtful, however, if this is the case, for the patient says her speech is unaltered; the teeth are very protruding and the palate high and arched.

The patient states that she has no pain anywhere; and has not had any pain in the lower extremities during the present attack. With the exception of impairment of memory and nervousness, her head feels all right; she is not giddy; she says that she sometimes hears a noise in her ears, like the sound of the sea. The thoracic and abdominal viscera are all healthy.

Progress of the case.—Under careful regulation of the diet, iodide of potassium, and strychnine, steady improvement took place.

On January 11th, when I next saw the patient, she looked bright and well. She was now able to walk around the room without a stick; she could stand on either leg, provided that she was first allowed to balance herself with the hand resting on a chair or table; and could stand quite steadily with the eyes closed and the feet close together. The loss of power and tremor in the muscles of the upper extremities and eyeballs had disappeared; she stated that she could now write perfectly well. The muscles in the lower extremities were much plumper and firmer; the knee-jerk was still entirely absent; the plantar reflex was equal on the two sides, but less lively than in most healthy persons. There was marked hyperæsthesia both in the lower and upper extremities. When the blunt point of a tuning-fork was drawn lightly across the skin, the patient made loud complaints of pain, and stated that she felt as if she were being severely scratched by a sharp-pointed instrument. There was no muscular tenderness, and the patient positively assured me that she had not felt any myalgic, "growing," shooting, or neuralgic pains since the present attack commenced. She stated that her memory was now quite restored.

REMARKS.—The chief points of clinical interest in this case have already been emphasized, and need not be again referred to. It is now well known that alcoholic paralysis is due to an inflammation of the peripheral nerves. Whether the neuritis produced by alcohol presents any pathological (microscopical) characteristics by which it can be distinguished from the peripheral neuritis which occurs in locomotor ataxia, phthisis, diphtheria, diabetes mellitus, and from the multiple peripheral neuritis which (since we know not its exact cause) is termed

idiopathic, has yet to be determined. It may, however, be broadly stated that in all of these conditions the lesion resembles more or less closely the degenerative changes which Ranvier and others have described in the peripheral ends of divided nerves.

Through the kindness of Dr. Price, of Nottingham, I had the opportunity, some little time ago, of submitting to careful microscopical examination the peripheral nerves in a case of diabetes with perforating ulcer of the foot; and it may not be uninteresting to the readers of this journal if I append to this paper drawings illustrative of the morbid appearances which were present in that case. I may also add that the occurrence of inflammatory or degenerative changes in the peripheral nerves is the probable explanation of the fact that in the later stages of diabetes mellitus the knee-jerk is not unfrequently absent, a view which has been advanced by Buzzard, and which had previously occurred to myself when the case which I am now describing came under my observation.

The clinical report of the case, as published by Dr. Price, in the *Provincial Medical Journal* of May 2, 1887, is as follows:

A. D., aged fifty-six years, frame-work knitter and hawker, was admitted as an in-patient to the Nottingham Dispensary on May 27, 1886.

Previous history.—With the exception of an occasional winter cough, he had enjoyed fair health until eighteen months previous to his being treated at the dispensary. For eighteen months he had passed large quantities of urine, and had suffered from great thirst. He was stated to have led a wild life, was never of temperate habits, and had been addicted to drinking bouts. No definite history of gonorrhœa or syphilis could be elicited, but strong presumptive evidence of venereal taint was present in the form of two scars, one in each groin, and of various suspicious marks on the legs. He stated that eighteen months before admission he had suffered from pains in the legs, and that "his feet had felt dead." At Christmas, 1885, he caught cold, and suffered from an aggravation of the foot symptoms, together with abdominal pain and vomiting. It was said that at this time he walked on his heels. In February, 1886, three months before his death, the ulcers of the feet first appeared, and gradually increased until he came under Dr. Price's care. There was no history of gout, rheumatism, or injury; the patient had, however, been exposed to all weathers, and in following his occupation of hawker had walked a great deal.

Present condition.—When the patient came under observation he was suffering from bronchitis, and symptoms indicative of commencing diabetic coma. The heart sounds were feeble, and occasionally intermittent. The arteries of the upper limbs were evidently diseased. The pupils reacted feebly to light. There was diminished sensibility in both feet, and also in the lower thirds of both legs. The knee-jerk was totally abolished. The skin over the legs and feet was of a livid hue, and below the normal temperature. A fetid odor emanated from both feet. The ulcers had, it was said, commenced as corns. One ulcer, the size of a two shilling piece, was situated on the plantar aspect of the metatarso-phalangeal joint of the right great toe. Its outline was sinuous and ragged. The bones entering into the formation of the joint could be felt at the bottom of the sinus, the metatarsal bone being eroded. A sinus of the same character, but of smaller size, was situated over the plantar aspect of the head of the fifth metatarsal bone of the opposite foot; at the bottom of this sinus carious bone could be detected. A partially healed ulcer was also situated on the inner aspect of the left great toe.

The urine, which was acid, and of the sp. gr. 1.030, contained sugar and a trace of albumen, but no peptone.

The patient died of diabetic coma on June 1st, the fourth day after he came under treatment.

Microscopical examination of the spinal cord and peripheral nerves. The appearance of the right foot which, with portions of the spinal cord and great sciatic, posterior tibial, and plantar nerves, was kindly sent to me by Dr. Price, is shown in Fig. 1.

The *spinal cord* appeared normal to the naked eye. On microscopical examination the arteries, more especially those entering the posterior columns, were found to be diseased; a very narrow band of degenerated nerve tissue, in which there were numerous corpora amylacea, could be traced on each side of the thickened and diseased arteries in the posterior column, but the great mass of the posterior columns was free from disease; and the characteristic lesion of locomotor ataxia was completely absent. Some of the nerve cells of the anterior cornua were degenerated, pigmented, and atrophied.

The *sciatic nerve* appeared healthy to the naked eye. On microscopical examination, the greater number of the nerve bundles were healthy, but here and there, more especially toward the periphery of the bundles, some of the nerve tubes were degenerated.

The *posterior tibial artery* was in an advanced condition of atheroma, and at one part of its course was adherent to the posterior tibial nerve. In the lower third of the leg the posterior tibial nerve was thickened, and the fibrous tissue in which the posterior tibial nerve and artery were embedded was densely infiltrated with bright staining nuclei. The plantar nerves were atrophied.

The portions of the *posterior tibial and plantar nerves* which I had the opportunity of examining, were extensively degenerated. I am unable to say whether this degeneration extended throughout the nerve in the upper part of its course, or whether it had resulted from the inflammatory changes which surrounded the nerve at the point where it was in contact with the diseased artery—whether, in short, the degenerative changes in the nerve were the result of a true neuritis, or whether they were due to a peri-neuritis and the pressure of inflammatory products on the nerve trunk. From the fact that the sciatic nerve was comparatively little affected (see Figs. 3 and 5) I am disposed to think that the latter view is not improbable. If this view is correct, it is interesting to note that a perforating ulcer was present in each foot, and consequently that a symmetrical neuritis in each posterior tibial nerve may result from inflammatory changes which originate in connection with diseased vessels.

The microscopical appearances which the degenerated nerves presented are faithfully reproduced in the accompanying illustrations. In many instances the nerve tubes are, it will be seen, completely degenerated; their axis-cylinders and white substance of Schwann having completely disappeared; the tubules are shrunken and atrophied; and they are either completely empty, or contain a granular and molecular *débris* which is unstained with osmic acid. (See Figs. 6, 7, 8, and 9.)

In many of the nerve tubules in which the degenerative changes are less advanced, the white substance of Schwann is segmented and broken up into globules. (See Figs. 6, 8, and 9.)

In the neighborhood of Ranvier's nodes, the nerve tubules were often

FIG. 1.

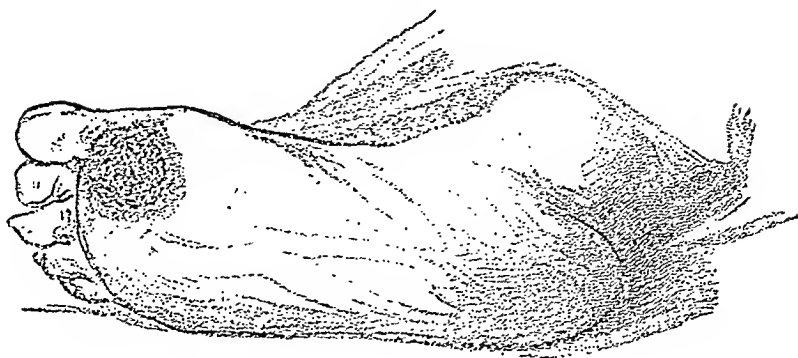
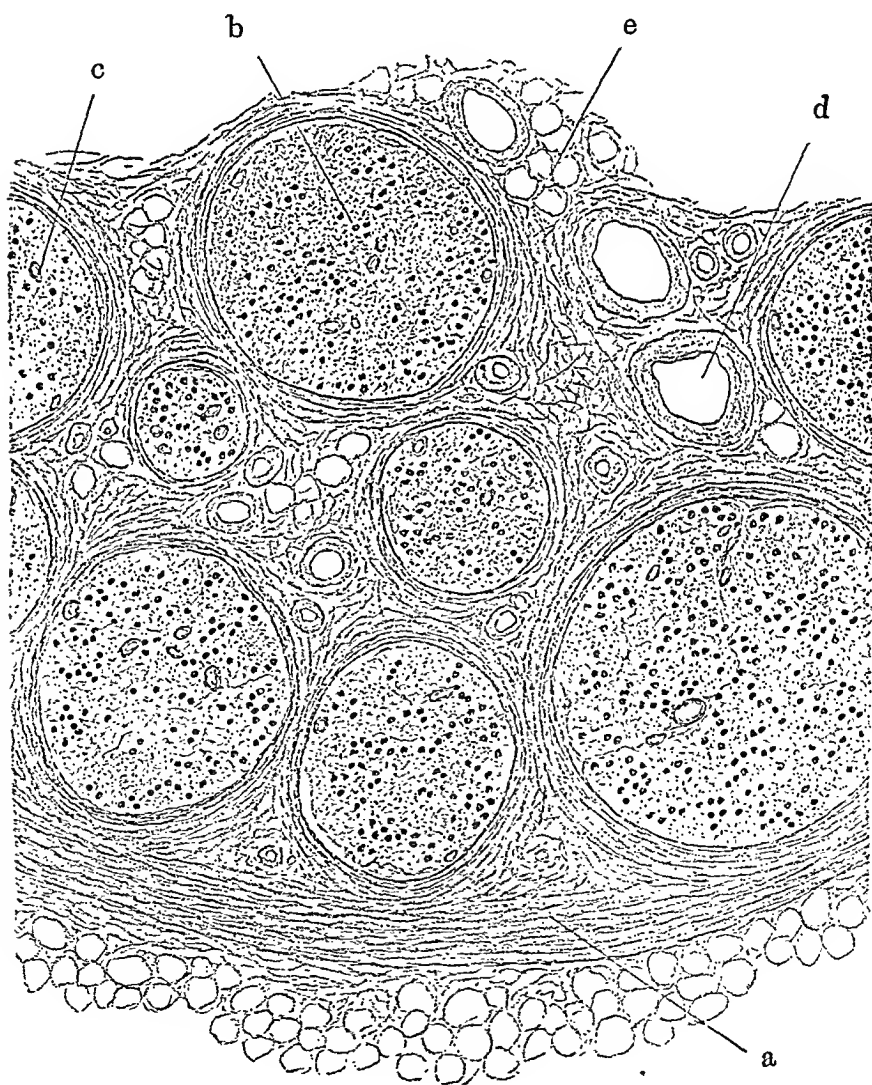


FIG. 2.



empty. The nuclei and protoplasm were in many places in great excess. The axis-cylinders were in some instances notably enlarged; and in some sections (see Fig. 7) many large rod-shaped masses of protoplasm, which stained much more deeply with picro-carminé than the ordinary ovoid nuclei, and which appear to be the remains of broken-up axis-cylinders, were observed.

The bloodvessels of the degenerated posterior tibial nerve were numerous and large; their coats were notably thickened.

For a detailed description of the appearances which the degenerated nerves presented the reader is referred to the figures.

Fig. 1 represents a perforating ulcer of the foot in a case of diabetes mellitus with advanced degeneration of the posterior tibial and plantar nerves.

FIG. 3.

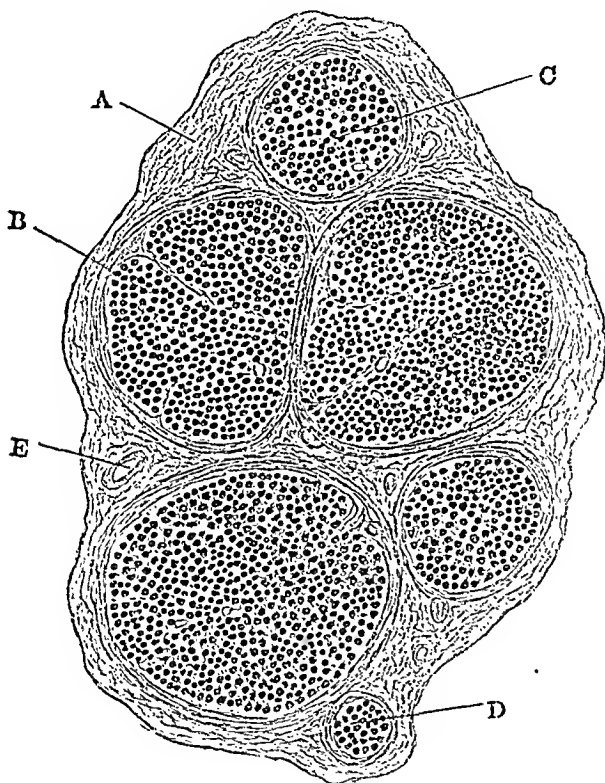


Fig. 2 is a camera lucida drawing of a portion of a transverse section of the posterior tibial nerve in a case of diabetes and perforating ulcer of the foot, showing extreme degeneration. Stained with osmic acid and picro-carminé and mounted in Farrant's solution. Magnified, Hartnack, ocular 3; objective 4; tube drawn out; and drawing reduced from $4\frac{1}{2}$ to 4 inches.

The letter a points to the outer fibrous sheath of the nerve, which, at the point of section, is surrounded with fat cells. The letter b points to a transversely divided bundle of nerve fibres which are in an advanced state of degeneration; the greater number of the nerve tubules are

atrophied; the darkly stained corpuseular-like bodies are transversely divided nerve tubules which still contain fatty material and in which the degenerative changes are much less advanced; compare with Fig. 3, in which a bundle of healthy nerve fibres from the sciatic nerve is seen. The letter c points to a small vessel in an adjacent bundle of nerve fibres; d, to a large vessel in the cellular tissue of the nerve [*i. e.*, between the bundles of nerve fibres], the walls of which are markedly thickened; the letter e, to fat cells.

FIG. 4.

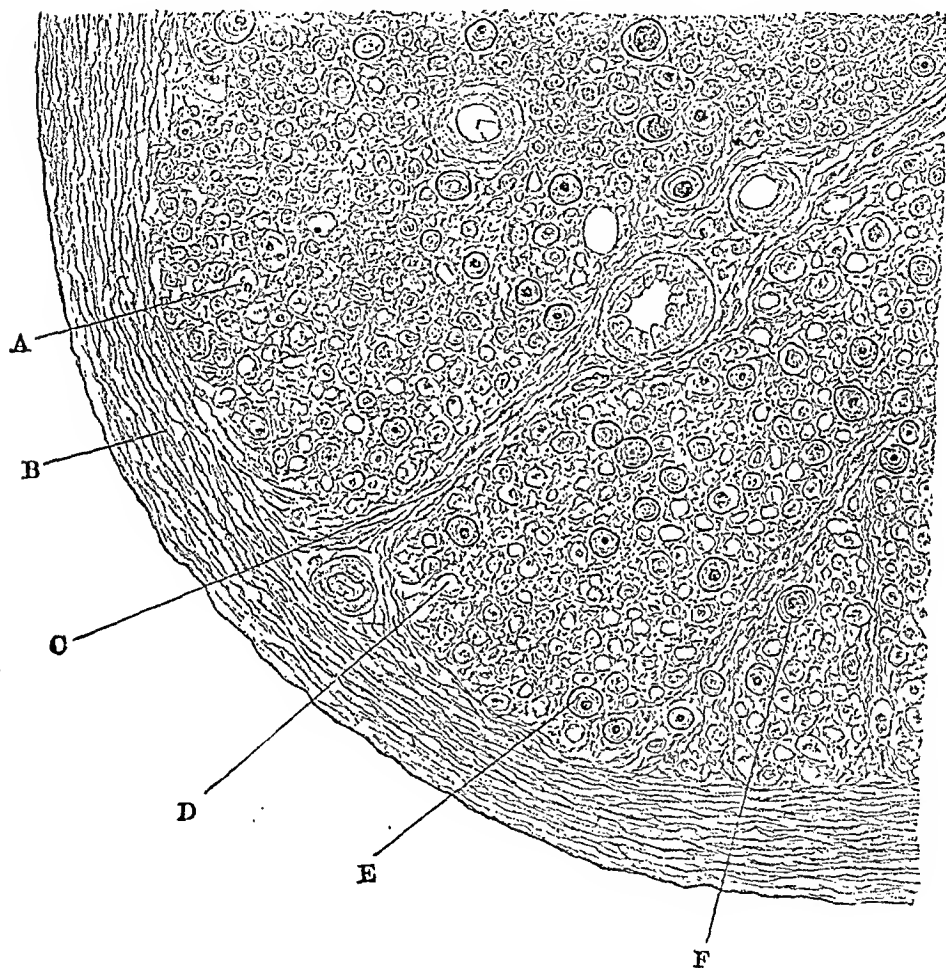


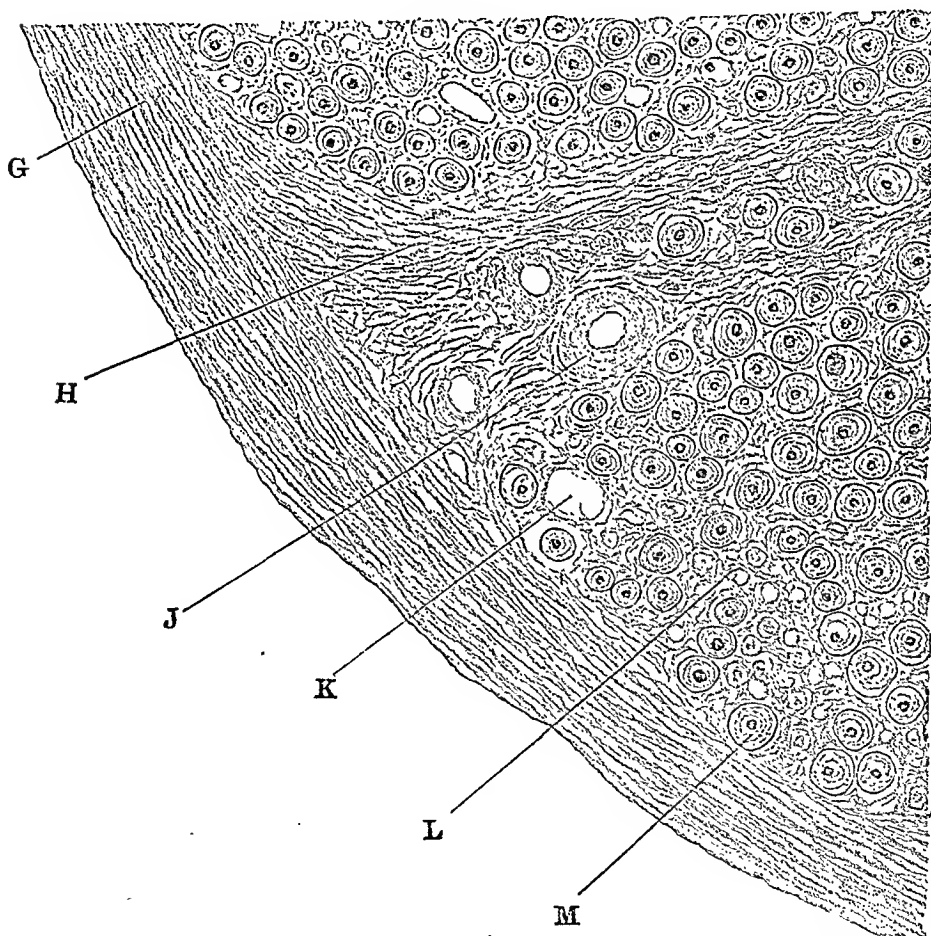
Fig. 3 is another camera lucida drawing of a portion of a transverse section of the sciatic nerve, in a case of diabetes and perforating ulcer of the foot, showing little or no degeneration. Stained with osmic acid and picro-carmin, and mounted in Farrant's solution. Magnified, Hartnack; ocular 3; objective 4; tube drawn out, and drawing reduced from $3\frac{1}{4}$ to $2\frac{3}{4}$ inches.

The letter A points to the fibrous tissue surrounding the nerve bundles (not, however, in this case the outer sheath of the nerve, for the portion of nerve shown in the figure was situated in the centre of the

nerve and not at the periphery); B, C, and D, to transversely divided bundles of nerve tubes, in which there is little or no degeneration—the darkly stained corpuscular-like bodies are the healthy nerve tubules seen in transverse section. (Compare with the degenerated posterior tibial nerve shown in Fig. 2.) The letter E points to a small vessel in the fibrous tissue between two adjacent nerve bundles.

Fig. 4 is a camera lucida drawing of a portion of a transverse section of the posterior tibial nerve in a case of diabetes mellitus and perforating ulcer of the foot, showing extreme degeneration of the nerve tubules. (Compare with Fig. 5.) Stained with picro-carmin, and mounted in

FIG. 5.



Farrant's solution. Magnified, Hartnack; ocular 3; objective 9; immersion tube drawn out, and drawing reduced from 5 to 4½ inches.

The letter A points to a degenerated nerve tubule containing some *débris*, or the remains of the axis-cylinder; B, to the fibrous sheath of the nerve bundle; C, to a process of fibrous tissue passing into the nerve bundle, in which three minute vessels, the walls of which are much thickened, are seen; D, to a degenerated and empty nerve tubule; E, to

a healthy nerve tubule; F, to a nerve tubule, in which the axis-cylinder is much enlarged. A large vessel, the walls of which are much thickened, is seen in the centre of the drawing.

FIG. 6.

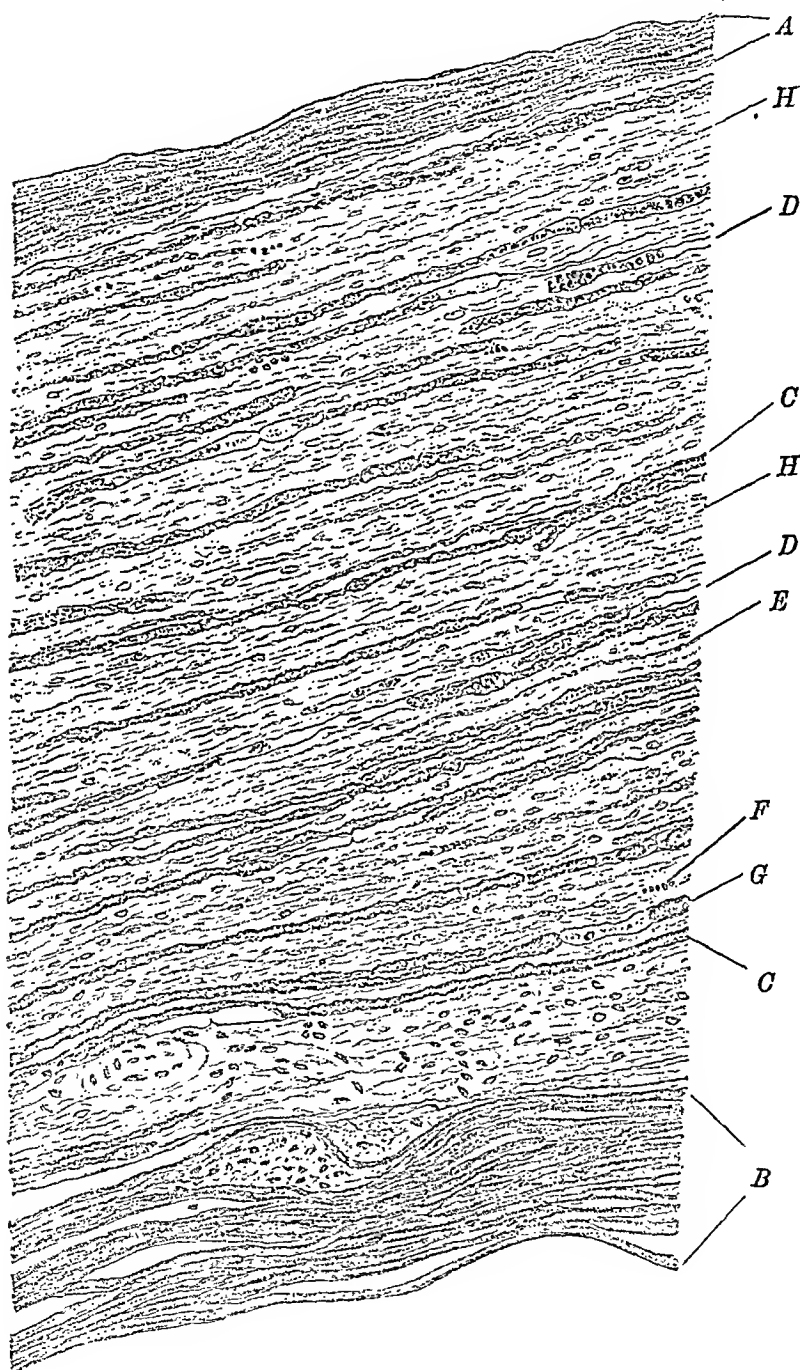
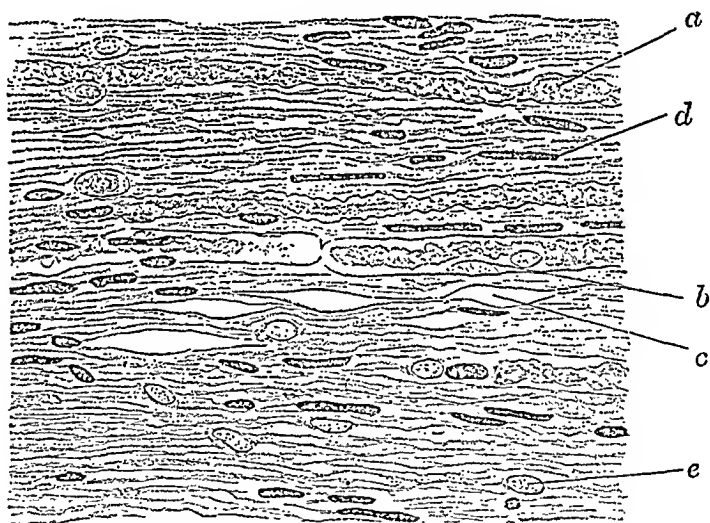


Fig. 5 is a camera lucida drawing of a portion of a transverse section of the sciatic nerve in a case of diabetes and perforating ulcer of the foot; showing comparatively little degeneration. Stained with picro-carmin, and mounted in Farrant's solution. Magnified, Hartnack; ocular 3; objective 9; immersion tube out; and drawing reduced from 5 to 4½ inches.

The letter G points to the fibrous sheath of the nerve bundle; H, to a process of fibrous tissue passing into the nerve bundle; J, to a small vessel, the wall of which is much thickened; K, to an empty space from which the nerve tubule has disappeared; L, to degenerated and shrunken nerve tubules; M, to a healthy nerve tubule. One of the axis-cylinders, further from the periphery than the point to which the letter K points, is enlarged. The fibrous tissue between the nerve tubules is in excess; the degenerated nerve tubules are chiefly seen at the periphery of the nerve bundle.

Fig. 6 is likewise a camera lucida drawing of a portion of a longitudinal section of the posterior tibial nerve in a case of diabetes mellitus and perforating ulcer of the foot, showing extreme degeneration. Stained with picro-carmin, and mounted in Farrant's solution. Magnified, Hartnack; ocular 3; objective 8; tube in; and drawing reduced from 8¼ to 6½ inches.

FIG. 7.



The letters A and B point to the fibrous sheath of the nerve bundle; C, C, to nerve tubules which still contain their fatty sheath; D, D, to degenerated nerve tubules in which numerous small globular masses (globules) of broken-down and degenerated myeline are seen; E, to a degenerated and shrivelled nerve tubule; F, to small globules of broken-down myeline in a nerve tubule, the walls of which are not distinctly seen in the drawing; G, to a partly degenerated nerve tubule, showing one of Ranvier's nodes, and an empty portion of the nerve tube adjoining it; H, H, to richly nucleated fibrous tissue, in the midst of which the shrivelled remains of completely degenerated nerve tubules are seen. In several places a Ranvier's node with the nerve tube on each side of it empty, is seen.

In order to see the details of this and the other drawings, they should be held about six inches from the eye.

FIG. 8.

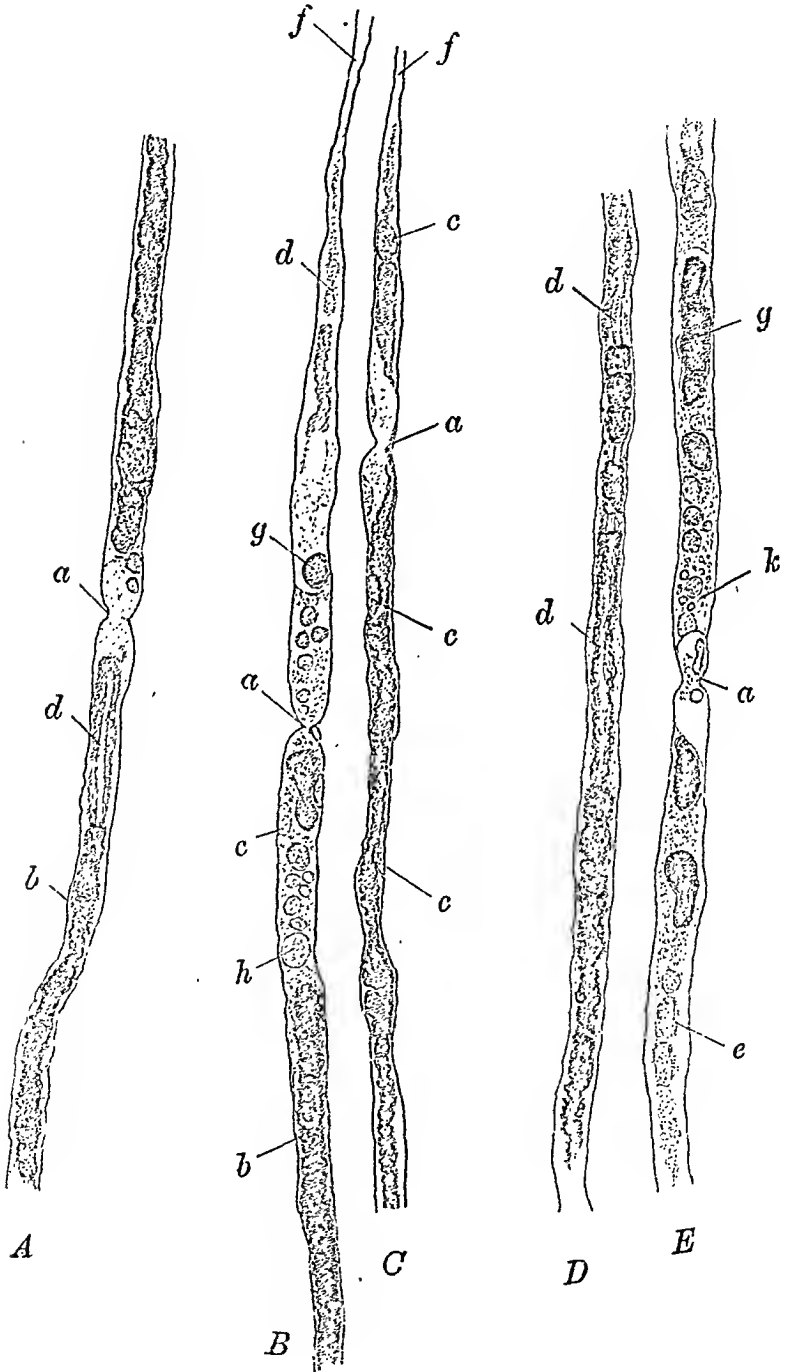
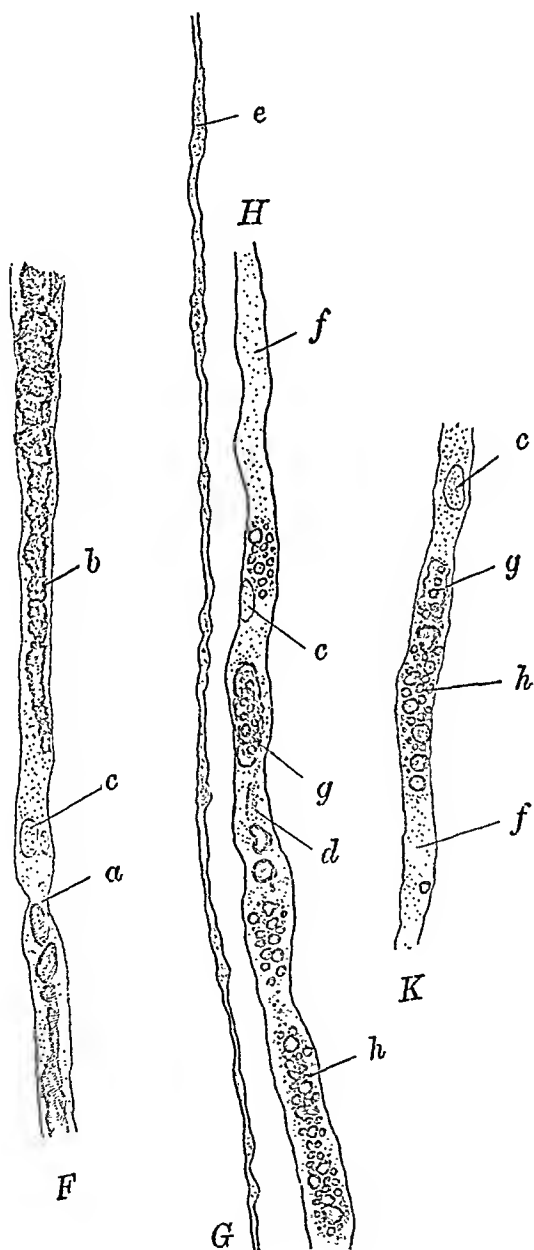


Fig. 7 is a camera lucida drawing of a portion of a longitudinal section of the posterior tibial nerve in a case of diabetes mellitus, and per-

forating ulcer of the foot, showing numerous deeply stained, rod-like bodies, some of which probably represent the remains of former axis-cylinders. Stained by long immersion (for a fortnight) in picro-carmin solution, and mounted in Farrant's solution. Magnified, Hartnack;

FIG. 9.



ocular 3; objective 9; immersion tube drawn out; and drawing reduced from $3\frac{1}{4}$ to $3\frac{1}{8}$ inches.

The letter *a* points to a nerve tubule in which the fatty sheath still remains; *b*, to a nerve tubule which is more degenerated, and in which

a Ranvier's node, and two nuclei (which are not, however, very deeply stained) are seen; *c*, to a fusiform dilatation of an empty and completely degenerated nerve tubule; *d*, to a deeply stained rod-shaped body, which probably represents a portion of a former axis-cylinder; *e*, to a large oval nucleus, which is not, however, very deeply stained; many similar oval nuclei, some of them surrounded by fine granular protoplasm, are seen throughout the section.

Fig. 8 is a camera lucida drawing of longitudinally divided nerve tubules (*A, B, C, D*, and *E*), from the posterior tibial nerve in a case of diabetes mellitus and perforating ulcer of the foot. Stained with osmic acid and picro-carmin, and mounted in Farrant's solution. Magnified, Hartnack; ocular 3; objective 9; immersion tube drawn out; and drawing reduced from 7 to 6½ inches.

The letters *a, a, a*, point to Ranvier's nodes; *b, b*, to the myeline sheath at points where it still remains entire (unsegmented); *c, c, c*, to nuclei, some of which are proliferating; *d, d, d*, to the axis-cylinder; *e*, to a greatly enlarged axis-cylinder in the process of breaking down; *f, f*, to empty and shrivelled portions of the nerve tubules; *g, g*, to portions of the broken-down (segmented) myeline sheath; *h*, to a large globular mass, which appears to be a broken-down portion of the myeline sheath, but which does not stain (or is only very faintly stained) with osmic acid; *k*, to a mass of small globules and granules, also unstained with osmic acid, in the neighborhood of a Ranvier node. Many other globular masses unstained by osmic acid, are seen in the neighborhood of *h* and *k*.

Fig. 9 is also a camera lucida drawing of longitudinally divided nerve tubules (*F, G, H, K*) from the posterior tibial nerve, in a case of diabetes mellitus and perforating ulcer of the foot. Stained with osmic acid and picro-carmin, and mounted in Farrant's solution. Magnified, Hartnack; ocular 3; objective 9; immersion tube drawn out; and drawing reduced from 6½ to 5¾ inches.

The letter *a* points to a Ranvier node; *b*, to the myeline sheath at a point where it still remains entire (unsegmented), though markedly degenerated; *c, c, c*, to nuclei, some of which appear to be proliferating; *d*, to a portion of an axis-cylinder; *e*, to a mass of very finely granular matter in a nerve tubule, which is completely degenerated and extremely atrophied; *f, f*, to portions of the nerve tubules, which are practically empty, only containing a small quantity of finely granular material; *g, g*, to large masses of the broken-down myeline sheath; *h, h*, to collections of small globules composed of broken-down (segmented) myeline sheath.

CARDIAC DEGENERATIONS AND BRIGHT'S DISEASE THE RESULT OF CHANGES IN THE INTIMA OF THE ARTERIES AND VEINS.¹

BY ARTHUR V. MEIGS, M.D.,
PHYSICIAN TO THE PENNSYLVANIA HOSPITAL.

A MAN, fifty-four years of age, was admitted to the Pennsylvania Hospital July 12, 1886, with the following history: He had always en-

¹ Read before the Philadelphia Pathological Society.

joyed good health except that about ten years before he had had an attack of rheumatism, which, however, was so slight that he was never obliged to give up his work. He had used alcohol in moderation, and denied having had venereal disease. He was taken sick about four or five months before admission to the hospital with dyspnoea, cough with expectoration, and loss of flesh and strength, and some swelling of the ankles. There was a trace of albumen in the urine, but the microscopical examination was negative. The albumen soon disappeared, and was not again found during his life.

Physical examination gave the following results: Radial pulse aortic in character; there is forcible and heaving pulsation over a largely increased area in the precordial region. The apex impulse is in the sixth interspace outside the nipple line, and pulsation can be felt as high as in the second interspace, and slight pulsation in the epigastric region. At the apex, the sounds are booming, and there is a loud, harsh murmur synchronous in time with the aortic thrust. At the aortic area there is a double murmur, neither portion of which is very loud. The systolic murmur becomes harsh at the upper part of the sternum, and both murmurs are audible in the carotids and subclavians, the systolic being much the louder. There is visible arterial pulsation in the neck and of the radials. The jugular veins are swollen, but not unusually so, and there is no venous pulsation. Lungs filled with sibilant râles, and there is some dulness at areas both anteriorly and posteriorly. The liver dulness natural, and the splenic slightly increased.

The following inferences in regard to the case were recorded at the time: Disease is probably vascular in origin, there is aortic obstruction and regurgitation and mitral regurgitation. The heart is enlarged, the enlargement preponderating upon the left side, and the vessels are atheromatous. Lungs congested and bronchitis exists. He died October 4, 1886.

Post-mortem.—Lungs somewhat adherent to chest wall and emphysematous and congested posteriorly. Heart much hypertrophied and distended with soft dark clots. The aortic valves thick and puckered, and the orifice narrowed. Mitral flaps not markedly diseased. Right side showed no valve changes. The papillary muscles in the left ventricle showed, upon section, marked fibroid degeneration, and there were spots, one in particular, in the anterior wall of the ventricle, which showed what seemed to be a less degree of the same degeneration. No such appearances could be detected in either the papillary muscles or walls of the right ventricle. The papillary muscles of the left ventricle, when viewed in cross section, exhibited numerous holes of a size, and looking as if they had been produced by a pin being stuck in the tissue. The aorta was much thickened, though not pouchy, and its ascending portion contained some calcareous plates. The arch and descending portion, and the abdominal aorta and all its branches, including the celiac axis, mesenterics, renals, primitive iliacs, and iliacs after their division, as well as many smaller vessels, were markedly thick and uneven upon the inner surface. The abdominal aorta on section showed at least one minute cavity, probably an atheromatous abscess. The internal mammary and coronary arteries were very markedly atheromatous. Examination of the veins showed that the inferior cava was much thinner at some positions than others, though everywhere the lining of the vessel was smooth. One of the primitive iliac veins,

though it looked, so long as unopened, natural, exhibited, when slit open, two bands which divided it into three separate channels, and must have reduced its carrying capacity by at least two-thirds. Another vein of about the size of a goose quill was found, which was four or five times as thick upon one side as the other, the thick side being like a rigid rod, and the other soft and flaccid as veins usually are. Stomach seemed natural. The liver granular and congested, and the spleen dark, congested, and firm. The kidneys congested and slightly cystic.

Sections were prepared for microscopical examination from the kidneys and their arteries, both small and large branches, from the lung, liver, heart, abdominal aorta, inferior vena cava, and a branch of the right renal vein. The sections from the heart included cuts, both transverse and longitudinal, of the posterior papillary muscle of the left ventricle, one including the anterior flap of the mitral and the left coronary flap of the aortic valve; one from the anterior wall of the right ventricle, including an artery; one about one-third or half way down the interventricular septum, including the wall of the left ventricle and arteries; and a separate section of the first descending branch of the left coronary artery. These sections all showed ordinary degenerative changes, such as would be expected, the kidney exhibiting in a marked degree parenchymatous change, and containing numerous casts, both in the cortical and medullary tubules. Some of the branches of the coronary vein exhibited distinctly thickening of the lining coat, and in one in particular from the anterior surface of the left ventricle there were spots which were so much thicker than the intima at most parts of the circle, as to be very striking. These were made up of whorls of tissue containing nuclei, and in many respects resembled the so-called nests of epidermoidal cells. The point, however, to which it is particularly desired to call attention, is that all the various sections showed to a greater or less extent a peculiar morbid condition of the tunica intima of the arteries and arterioles. This consisted in an irregular thickening, often, in small arterioles, to be plainly distinguished as lying entirely within the plicated membrane, and in larger arteries recognizable by the naked eye as belonging to the lining of the vessel, and containing in many instances a greater or less number of nuclei imbedded in a structureless matrix.

The sections from the papillary muscle showed in marked degree the appearances of fibroid degeneration, there being great increase of the fibrous material, this ramifying from centres in various directions amongst the muscle bands, and in spots total disappearance of the muscular tissue had taken place. In others again the sheaths of the fibres were still distinct but their interior filled with a material evidently different from that constituting the healthy bands often visible in the same field. In some cases these muscle sheaths, when seen in cross section in particular, seemed to have within them vacuoles, or the contained material was transparent. The cross markings upon the muscle bands were disposed to be indistinct and many fibres seemed narrow and some pointed toward their extremities. There was marked brown atrophy, the pigment being visible at the poles of the nuclei both in longitudinal and transverse section. The muscle nuclei appeared in many instances to be much swollen. No large sized arterioles were visible, but in the transverse sections in particular there were a great many large roundish spaces which were surrounded by

fibrous tissue containing nuclei. Though their walls were very thin, these were probably veins, especially as quite a number of them were filled with blood corpuscles. The endocardial layer varied much in thickness and the outer portions in particular were, in places, infiltrated with round cells, and at spots where the increased thickness was great the muscular fibres underneath were much degenerated, in some places the sheaths seeming to contain only granular matter and again presenting the already mentioned apparent vacuoles.

It is very interesting to endeavor to discover among the complexity and apparent confusion of organic changes found in this man's body, what was the primary disease, and certainly the attainment of success in such a search would be the first step in the direction of our being more happy in our therapeutic management of such cases than we now are. He had had bronchitis, emphysema, and catarrhal pneumonia, for there was distinct catarrhal infiltration of the pulmonary alveoli; valvular disease of the heart and fibroid degeneration; fatty infiltration and atheroma with calcareous degeneration of some of the coronary vessels. There was also interstitial hepatitis, parenchymatous and cystic disease of the kidneys, and inflammatory bands obstructing one of the largest (the primitive iliac) veins in the body with further evidence of a diseased condition of the venous system (thickening of a branch from the inferior vena cava and thickening of the intima of some of the coronary veins of the heart). Lastly there was the disease of the arteries, consisting of the changes described in the intima and found in all the organs and tissues in which they were sought for.

The conditions might be said by some pathologists to be due to syphilis, as there was outgrowth of the lining of the arteries containing cellular elements, but this seems a mere begging of the question, as the man denied ever having had the disease, and it is now acknowledged by some of the best authorities that such outgrowth is often due to other causes. A few years ago the case would have been said to be one of valvular disease of the heart of rheumatic origin and all the other lesions to be secondary to this cause, but this seems a very weak explanation, as the patient never had any rheumatism except some slight vague joint pains which lasted only a few days and never prevented his working as a day laborer. This hypothesis, therefore, would seem very far-fetched and it is much easier to believe that the valvular disease was but part and parcel with the atheromatous changes found so extensively in the arteries, for what are the valves but reduplications of the lining portions of the arteries and heart?

Dr. Johnson and those who accept his views would probably say the case was one of parenchymatous disease of the kidneys and that all the other pathological lesions were secondary. He says (*Medical Lectures and Essays*, by George Johnson, London, 1887, p. 653), "During the progress of chronic Bright's disease, the bloodvessels in the kidney and

in many other tissues and organs undergo very interesting changes, but these occur later and less constantly than those which affect the secreting tissues of the gland," and again (p. 700) "the primary and essential structural changes consist in a desquamation, disintegration, and removal of the renal gland cells." In this case, however, there were no symptoms developed during life to draw attention to any disease of the kidneys, except that for a brief time after his admission to the hospital there was a trace of albumen without casts in the urine; the absence of any of the ordinarily recognized clinical symptoms of renal disease was a marked feature in the life history of the patient, the pathological lesions discovered after death and suspected or recognized during life in other organs were so much greater in extent and so overshadowed everything that might be attributed to the kidneys that it seems very unwarranted to assume that the kidney lesion, which was so latent, could have been the point of origin of the pathological train.

What then is left as an explanation of it all? The state of the blood-vessels which was found so widely diffused. There was evidence of marked disease of the veins as well as the arteries, and then the lesion of all others which was most extensively diffused, and which could be most easily demonstrated, was the change of the tunica intima of the latter. When several experts examine a section of an artery there will often be much difference of opinion expressed in regard to the state of the muscular coat, whether it is hypertrophied or not; and if hypertrophied, as to how much; but if the intima of an artery is seen to be twice as thick upon one side as on the other, every one must agree that the condition is a morbid one, or the section has been cut obliquely. This change of the intima has not been commonly noticed, and when it has been, it has not been given by any means the prominence due it. Johnson, even in his later utterances, does not correctly represent it, for he says (*Medical Lectures, etc., loc. cit., page 695*):

"The thickening of the arterial coats is due to an excess of the normal tissue, with no appearance of structural change or degeneration. The increase of the inner longitudinal layer of the hypertrophied renal arterioles is due to a thickening of the tunica intima. The intima is composed of three distinct layers—an outer wavy elastic layer, in contact with the muscular coat; an inner endothelial layer; and an intermediate layer of delicate connective tissue . . . the thickening of the intima in cases of granular kidney is caused by an increase of the connective tissue between the elastic and endothelial layer. . . . It is always associated with hypertrophy of the muscular coat, and bears a constant relation to it. The structural characters of the thickened intima are remarkably uniform, its parallel fibres passing in the direction of the axis of the artery. and at right angles to the circular muscular fibres, while the canal of the artery retains its uniform and natural diameter throughout its entire course."

Again, at page 698, he says:

"On comparing the renal arterioles with those from other tissues, this remarkable difference is apparent, namely, that while the hypertrophy of the

muscular walls occurs alike in the arterioles in all the tissues, the thickening of the intima is found, so far as I know, only in those of the kidney."

No one has done more for the advancement of renal pathology than Dr. Johnson, and yet in the passages quoted he makes a number of statements which can by no means be substantiated. In the present state of knowledge no one has a right to assume that the thickening of the intima is due only to an excess of normal tissue, and is merely an increase of the connective tissue between the elastic and the endothelial layers, for in elderly people it is almost always impossible to distinguish any endothelial layer as a positive boundary; and frequently, when the process has reached the further stages of its development, in the arteries of the heart, for instance, there is extensive degeneration of the walls of the vessels, this extending deeply into the muscular layer. The existence too of hypertrophy of the muscular coat of the renal arterioles cannot always be positively demonstrated when there is evident increased thickness of the intima. The most marked characteristic of the thickening of the intima is its irregularity, its giving rise to various hills and hollows upon the inner surface of minute arterioles, just as can be seen in any marked instance of atheroma of the aorta or other large vessel. It is not worth while to repeat, after what has already been said, that the thickening of the intima is very far from being confined to the renal arteries.

The case as detailed would have been considered, without doubt, as one of Bright's disease with enlarged kidney, if the renal lesions alone had been examined; of valvular disease of the heart, due to endocarditis, if the gross appearances of that organ alone had been considered; and of fibroid degeneration, if the sections of the papillary muscle alone had been examined.

There is a communication in a late number of the *Lancet* (Lectures on Fibroid Degeneration, etc., of the Heart, and their Association with Disease of the Coronary Arteries, by J. L. Steven, December 10, 1887, and subsequent numbers), in which the author endeavors to show by the citation of cases that fibroid degeneration is, in the great majority of instances, due to disease of the coronary arteries. Why then is it not much easier and more natural to suppose that lesions such as those described are due to the condition of the arteries which is found to exist to so great a degree in so many different organs, and that the attack which has its origin in them becomes a case of Bright's disease, one of emphysema of the lungs, of valvular disease of the heart, or fibroid degeneration, or some other degenerative disorder, according as the arterial change takes possession of one or another of the organs.

It would seem, too, upon general principles, that it is much more likely that the intima is earlier attacked than the muscular layer, and suffers more, and causes more serious disorder, for the intima is supposed

to constitute the walls of the capillaries, which have no muscular coat, and this would perhaps go to explain entirely, or in part, the fact of the destruction of nutrition, which takes place in the organs most seriously affected.

The end to which these observations tend is to show that often Bright's disease, and some forms of valvular heart disease, besides many other chronic degenerative processes, are not separate entities, as has been supposed, but merely the varying expressions of a disease of the arterial system, which probably has its origin in the tunica intima. What the cause is which sets this condition in motion must be, in the present state of knowledge, a matter of speculation.

MALIGNANT OEDEMA AND FAT EMBOLISM.

BY L. BREMER, M.D.,

OF ST. LOUIS, MISSOURI.

CASE.—On March 17, 1887, a woman of about thirty-five years of age, was admitted to the St. Louis City Hospital, who gave the following history: She had been in good health up to one month ago, when, after menstruation, she became very weak, lost her appetite, and fell off in flesh. About two weeks before admission she was seized with vomiting, which lasted about one day. She vomited six times on that occasion. After this she became still more debilitated, until finally she had to apply for admission to the hospital.

Status præsens.—Headache, anorexia, coated tongue, moderate diarrhoea, and vomiting, the latter having set in again the day previous to admission. A slight bloody discharge from the vagina was declared by the patient to be due to menstruation. Liver slightly enlarged, tender on pressure, skin jaundiced. Respiration hurried and superficial, pulse quick, moderate fever. The whole of the right pectoral region, and part of the upper right arm were swollen, of a bluish color, and *crepitated on pressure*. There was no external injury of the integument of these parts noticeable. The skin over the crepitating area appeared raised in spots; these elevations felt like small air cushions. *On being punctured they emitted a sero-sanguinolent fluid and a stinking gas, reminding one of sulphuretted hydrogen.*

The emphysema increased and spread rapidly, extending over the whole chest up to the neck, the lips and fingers became cyanosed and cold, the heart's action extremely rapid and feeble, and the patient died about twenty-four hours after admission, retaining her consciousness to the last.

This is the clinical report of the case, gathered from the record, and from data furnished by Dr. Dalton, resident physician of the City Hospital. I myself did not see the patient during life.

The report is rather meagre, owing to the short time of observation. Temperature chart was lost. Nothing could be learned as to the previ-

ous medical history of the woman, especially that of the last month of her life, since it was impossible to find out the name of her medical attendant. The only point of interest elicited by inquiry was that she had been a "sporting woman," who had separated from her husband, and was in the habit of producing abortion on herself by the introduction of instruments into the womb.

The autopsy was made seventeen hours after death.

The following were the most salient points evolved : Body of a medium-sized, well-nourished woman, of apparently thirty-five, skin jaundiced. Bluish-red discoloration of the skin over right pectoral region, extending to the middle of the right upper arm. The integument is punctured in about five places where the discoloration appears most intense. On pressing on the uninjured skin of these parts, there is decided crepitation. On incision, the right pectoralis, the deltoid, biceps, and part of the triceps muscles of the right arm, present a soft, structureless, friable, pulaceous mass of a reddish-brown color. Fat globules abound in the broken-down material. The subcutaneous adipose tissue seems to be partly melted down, torn, and shredlike. Some of the venæ comites brachii are thrombosed. Lungs look slightly congested and œdematous. All the organs of the pectoral and abdominal cavities are emphysematous, the gas being distributed not only in and beneath the investing membranes, but also in varying degrees throughout the parenchyma of the organs ; consequently the heart, stomach, liver, pancreas, spleen, kidneys, uterus, with appendages, all float freely in water. The uterus is rather voluminous, four inches long, its mucous membrane covered by a layer of an inky-black mass. The retroperitoneal connective tissue looks like a heap of vesicles containing air.

All the organs, especially the spleen, which exhibits besides several infarctions, and is of brownish color, show, on sections, small holes varying from the size of a pin's head to that of a goose shot, filled with gas. The spleen especially, and, to a less extent, the liver and kidneys, look *worm-eaten*. No visible changes in the brain.

A *microscopical examination* reveals the following : The broken-down material of the right pectoralis, the biceps and triceps muscles and the subcutaneous areolar tissue covering them contains, besides shreds of connective tissue, many fragments of muscle fibres in various stages of fatty degeneration, smaller and larger fat globules. The free fat seems to be derived partly from the areolar tissue and the perimysium internum, partly from metamorphosed products of the contractile tissue. The whole mass swarms with bacilli which are easily stained with the usual basic aniline dyes. Gram's method fails to give satisfactory specimens ; although quite a number of the microorganisms show a deep blue and even black color, a great many of them are found to be decolorized. No spores are demonstrable. Stained in aniline-water-gentian-violet the color is well retained even after washing the specimens with alcohol.

Two kinds of bacilli, differing in shape, can be made out ; one, forming slender rods rounded off at their extremities and considerably smaller than anthrax bacilli ; the other showing about double the diameter in both directions. The former is diagnosed as the bacillus of malignant œdema, the latter as the pseudo-œdema bacillus described by Flügge and Liborius. Small colonies of micrococci without any characteristic form or arrangement can be demonstrated in the uterine tissue, but not in the other organs.

The smaller bacilli were found in enormous masses throughout the organs of the pectoral and abdominal cavities, on the serous coverings as well as in the tissues themselves, but principally in those small holes which probably had been formed by the same kind of gas which produced the crepitation in the skin. It is reasonable to infer that, whenever larger colonies of the parasites had been formed, this gas was evolved as one of the products of bacterial metabolism and, expanding with equal force in every direction, the special cavities resulted.

The bacilli were found most abundantly in the uterine cavity, under its peritoneal covering, in the ovaries and the retroperitoneal connective tissue. However, the formation of cavities was not so marked in the substance of the womb and ovaries as it was in the spleen and liver.

The inky coat lining the uterine cavity was found to consist of blood corpuscles in various stages of disintegration and bacterial colonies. In some places these could be followed through the subepithelial tissue into the intermuscular spaces of the womb.

The following are the results of a microscopical examination of the several organs: In the lungs rather extensive simple œdema, swelled-up epithelia and albuminous detritus in many alveoli, bacilli in large numbers in the alveolar walls, none are observed in the vessels. Masses of fat clog and distend many capillaries. The heart's muscle is friable and difficult to cut. Some bacilli found between the intermuscular connective tissue fibres, a great many under the pericardium. They are also seen on the endocardium and in the fluid blood of the heart. In the (fatty) liver the bacilli abound in the capillaries. Some veins seem to be largely distended owing, no doubt, to gas secreted by the bacteria. Other cavities are found to be formed in the liver substance itself; here bacilli in great numbers adhering to the walls of the cavity. The whole organ looks wormeaten. There is beginning interstitial hepatitis. In the spleen the same pathological condition is observed, colonies found at irregular intervals throughout the organ, several infarctions and localized hemorrhages. The most important and marked pathological changes were to be seen in the kidneys.

There are traces of an old interstitial nephritis which, however, would scarcely seem sufficient to make any symptoms during life. In the pyramidal portion long tracts of bacterial colonies are seen to extend in the direction of the uriniferous tubules, the bacteria seem to lie in the connective tissue spaces, only occasionally and then only in lesser numbers can they be detected in the tubules. These latter are either greatly distended, the epithelium being either compressed or having entirely disappeared, or they are filled with epithelial masses undergoing a transformation into what seems to be in some places amyloid degeneration (methyl-violet colors them red). They have a tendency to coalesce in places, change their form, and break down into globules. Methyl-violet produces all shades of colors between red and yellow. The tubuli recti are especially affected in this way, whereas Henle's loops appear, on the whole, intact. In the cortical portion which, like the spleen, looks wormeaten, Bowman's capsules are enormously dilated in some places, while in others they are of normal size closely surrounding the glomeruli. The tubuli contorti in the neighborhood are also very much dilated, their epithelium being either greatly compressed or having disappeared. Here and there, the limiting membranes being broken, these dilated spaces communicate, forming ragged holes in the substance of

the kidney. It is these holes and the dilatation of Bowman's capsules that give the cortical portion the wormeaten appearance. In some of these spaces bacilli in great numbers can be demonstrated. There is fat embolism in many of the glomeruli, and the vasa recta, and free fat can be seen in some of the convoluted tubules of the first order (proximal convolutions).

Experiment showed that the microorganism observed in the various parts of the body was the bacillus of malignant œdema. A guinea-pig was inoculated in the abdominal wall with about four drops of the sero-sanguineous fluid obtained from the disintegrated mass spoken of, and died about twenty-four hours after inoculation. The experiment was repeated in another guinea-pig, the infecting material having been scraped off the peritoneal covering of the liver and spleen. Death took place after about thirty hours. Few bacilli characteristic of malignant œdema were found in the blood, but they abounded on the serous membranes of the pectoral and abdominal organs. Formation of gas was only observed around the place of inoculation. Owing to defective methods, at that time, I did not obtain the microorganisms in a state of pure culture.

REMARKS.—Koch¹ and Gaffky, several years ago, established the fact that when a quantity of earth, taken from the upper layers, especially of rich garden soil, or dust, or blood of decomposing animals, is introduced under the skin of a rabbit, or guinea-pig, or mouse, these animals take sick and die in from twenty to forty-eight hours. Blood, or material scraped off the serous membranes of the pectoral and abdominal cavities, when inoculated in healthy animals, will set up the same disease followed by the same result. But it seems that, by passing through several organisms, the poison loses its virulence, for the third animal in the series remains healthy after inoculation (Gaffky).

The disease had been previously known to and described by Pasteur,² who had produced it in animals by the subcutaneous injection of putrid blood; he found invariably in the animals thus infected a microorganism, which he called *vibrion septique*. Koch established the identity of this "vibrion" with his bacillus of malignant œdema. It is to the labors of this investigator and of Gaffky that we owe our knowledge of the habitat, life-properties, and pathogenic action of the microbe.

Besides, the artificially produced, malignant œdema is not uncommonly met with in sheep, hogs, cattle, and occasionally in horses. It is a disease which, until recently, was often confounded with anthrax; but the manner of invasion, its distribution through the body by way of the connective tissue canals (the anthrax bacilli spreading through the blood-stream), and difference in spore-formation, enable us to make the differential diagnosis between the two affections, which clinically resemble

¹ Mittheilungen a. d. Kaiserl. Ges.-Amt. I. p. 54.

² Bull. de l'Académie de Méd., 1877, 1878.

each other so closely. The post-mortem changes correspond with those of the case described by me, the wormeaten appearance of the infiltrated muscle and of various organs, due to the gas-bubbles, deserves special mention.¹

In 1882 malignant œdema was, for the first time, observed and recognized as such in man by Brieger and Ehrlich.² They injected in six patients, suffering from various affections, tincture of musk under the skin for the purpose of stimulation. Two of them were cases of typhoid with moderate fever, but presenting grave symptoms (sopor) on the part of the central nervous system; the others were one of puerperal sepsis, one of colic from biliary calculi, one of carcinoma of the stomach, and one of aortic aneurism. Nothing unusual was observed in the last four although the same syringe and the same injecting fluid had been used, but the two typhoid cases showed on the day following the injection at the injection puncture (on the thigh) a circumscribed redness and œdema, which rapidly spread upward and became generalized; it was accompanied by emphysema of the skin. *Pari passu* with the extension of these pathological lesions the patients sank and grew weaker, although the previously existing sopor had disappeared, and comparative comfort had been established. There was no additional rise of temperature, and the spleen showed the same volume it had before the injections. The patients died suddenly, having remained conscious until the end.

The autopsy was made by Juergensen, who found the lesions characteristic of typhoid.

The diagnosis of supervening œdema, made during life, was verified by inoculations in animals, and by obtaining pure cultures of the bacillus. The authors inferred that the tincture of musk injected contained the microbes of malignant œdema. Unfortunately, the tincture bottle had been lost through the negligence of the nurse, so that no examination of the suspected deleterious fluid could be made.

Brieger and Ehrlich remember only one case of extensive emphysema, occurring in a case of other infectious disease; this was a case of diphtheria, in which the trouble developed spontaneously, and terminated fatally. The diagnosis was not made at that time, but after their later experience. They conclude that it was malignant œdema supervening on diphtheria. They think that ordinarily man is little susceptible to the virus of malignant œdema, and that it takes a body weakened by other infectious disease (typhoid and diphtheria, for instance) to favor the invasion, and allow of the growth and multiplication of this parasite.

Such a combination of two different infectious diseases they call "mixed infections," and point to the not uncommon secondary microbian

¹ Comp. Kitt, *Unters. über Malign. Oedem, u. Rauschbrand bei Hausthieren*, Jahresber. d. Königl. Thierarzneisch in München, No. 15, 1885. See, also, Flügge's *Mikro-organismen*, pp. 193-197.

² Ueber Malignes Oedem bei typhus abdominalis, Berlin. klin. Wochenschr., 1882, No. 44.

invasion in cases of typhoid fever, smallpox, and anthrax carbuncle, in the course of which other bacteria than those recognized as pathogenic of the affections named, make their appearance. Here, then, the original parasite seems to pave the way and prepare the ground for a different class of invaders. This explanation is also applicable to the occurrence of new infections during convalescence from an original infectious disease.

Better known, though going by a different name, is malignant œdema in man after complicated fractures and deep, lacerated wounds. In pre-antiseptic days it was not uncommon to witness emphysematous gangrene—i. e., in modern parlance, malignant œdema—in such patients. Trifaud¹ has published a case of what the French call *gangrène gazeuse foudroyante*, occurring in a man, æt. thirty-three, after an open fracture of the femur. Trifaud has looked up the literature and found altogether 123 cases reported, all of them due to traumatism. Basing his conclusions on these cases, he finds that there are two kinds of emphysematous gangrene; one, local in its onset, and the other, general from the start. The results of a microscopical examination in Trifaud's case, regarding the bacteria found, and his experiments made on animals, agree on the whole with the experiences of Pasteur, Koch, and Gaffky, and there can be no doubt that this terror of past generations of surgeons is due to a successful invasion of the ubiquitous bacillus of malignant œdema. Rosenbach² arrived at the same conclusions.

As regards the case described by me, I am fully aware of its deficiency in point of clinical observation; although there can be no doubt as to its nature. It would have been of interest to examine the urine for microbes and fat. Again, the autopsy was made seventeen hours after death, which means, according to the experiences of Brieger and Ehrlich, that the number of bacteria found then does not correspond to that present at the time of death. These observers found that the bacilli of malignant œdema multiply more or less rapidly in the dead body according to a more or less favorable temperature. In our instance the corpse had been lying in the ice-box; still it is certain that there was an active post-mortem proliferation, since the microbes were also found, though in small numbers, in the bloodvessels, whereas it is characteristic of (experimental) malignant œdema that its bacilli spread through the connective tissue spaces; a fact, by the way, which permits a differential diagnosis from anthrax, which spreads through the bloodvessels. But it is reasonable to infer that the gaseous expansions of some of the internal organs (notably the spleen) took place intra-vitam; yet, some of the holes thus produced were found to be enormous dilatations of

¹ Revue de Chirurg., iii. 10-12; after Fortschr. d. Med., 83.

² Mikroorganismen bei den Wundinfektionskrankheiten des Menschen. Wiesbaden, 1884.

veins, which would show that in certain cases of malignant œdema in man the microbes circulate also in the blood.

This case is of interest, first, because it is the third of the kind published as non-traumatic malignant œdema; and, secondly, because of its complication with fat embolism, and all this without open fracture or deep, lacerated wound. It is safe to say that heretofore many persons have died from such a combination of pathological states without the nature of the disease having been recognized.

The point of entrance of the poison in our case seems to have been the uterine cavity. The woman was in the habit of producing abortions on herself by the use of instruments, and the appearance of the uterus was such as to warrant the belief that what was claimed to be menstruation was, in reality, the result of miscarriage. Probably an unclean—*i. e.*, an infected—instrument had been used in the operation.

The microscopical examination also pointed to the uterine cavity as the starting-place of the infection. The dense mass of microbes constituting a great part of the black material covering the inner surface, could be seen to insinuate themselves between the lymph spaces of that organ; the epithelial layer of the piece examined by me had entirely disappeared, thus favoring an easy invasion of the parasites. Although it is in the highest degree probable that the channels of infection led through the uterus, it could not be proved beyond a doubt that abortion had really taken place, or that instruments had been introduced into the womb. Might not an auto-infection have taken place—*i. e.*, might not the pathogenic organism favored by a low nutritive state of the patient, have found access to the blood from the alimentary canal, in which the bacilli of malignant œdema normally occur in considerable numbers?

Why it was that, of the peripheral parts, the pectoral region and the right upper arm were the seat of predilection for the multiplication and deleterious action of the microbe, is hard to explain.

Another difficulty presents itself when we inquire into the predisposing cause of malignant œdema in our case. The affection is certainly a rare one when compared with the number of criminal abortions and the usually observed forms of putrid infections following such practice. For the development of the latter the predisposition seems to be widely spread, from the former there exists almost an immunity, unless the cases of death from sepsis after abortion have been inaccurately observed; indeed, many of such patients may have died from malignant œdema without the disease being recognized as such. Whether in this case there had been a previous infectious disease which prepared the soil for the invasion of the specific bacilli, or whether it was the broken-down state of health that favored the intrusion of the parasite, is impossible to decide. There was, at all events, no sign of typhoid lesions in the

intestinal tract, and the only pathological changes demonstrable were a beginning interstitial hepatitis and a slight interstitial nephritis of old date which probably did not even give symptoms during life.

The jaundice may possibly be referred to the state of the liver alluded to, but it is more probable that part of the hæmoglobin in the blood was split up by the action of bacteria, one of the products of decomposition being the bilirubin, and that, consequently, this was a case of icterus hæmatogenes. Whether for such an event the schizomycetes had to be present in the blood, or whether their poisonous metabolic products (ptomaines) circulating in the blood are responsible for the decomposition of the coloring principle of the blood, is another question which, at present, it is impossible to answer.

Another point of interest is the fat embolism found in the lungs and kidneys. The grave and often fatal effects of fat embolism are well known to surgeons as not infrequently supervening on complicated fractures and deep lacerated wounds. The marrow of the broken bones, or the torn and mashed adipose tissue, is looked upon as being the source of the fat which, being absorbed by the veins, ultimately becomes impacted in and clogs the capillaries of the lungs, brain, and kidneys. Cases have also been reported of lesions of this kind having been produced without wounds, by blows on the skin, dislocations, etc.¹

Even in infectious diseases the occurrence of fat-embolism is no novelty, although the text-books on pathology seem to be silent on this point. Flournoy,² who first described this pathological state in such diseases, found the marrow of the long bones altered, the canals being filled with a fluid dark-red mass, in which, under the microscope, a great many very small fat-cells and red blood-corpuscles could be seen.

The bones in my case were not examined. Jolly³ reports three cases of fat-embolism occurring in delirious mania, two of which at least would to-day be diagnosed as malignant œdema; the remaining one presents only a probability of being of that nature. In all three of them there were injuries of the integument brought about by the restlessness and violent movements of the patients. In regard to one of them, a general paralytic, in whom a rapidly spreading bed sore had developed on the sacrum two days before death, the post-mortem report (Recklinghausen) says: . . . "*Slight icteric coloration of the skin;*"⁴ *suggillations at the extremities, especially the lower ones; decubitus at the right great toe. . . . Deep decubitus in the gluteal region with formation of emphysema which extends to the right thigh. Marked fat embolism in the lung.*"

¹ Fitz: Boston Med. and Surg. Journal, May 30, 1878.

² Contribution à l'Étude de l'Embolie graisseuse. Dissert. Strassburg, 1878.

³ Ueber das Vorkommen von Fettembolie bei aufgeregten Geisteskranken. Arch. f. Psych. etc., xi. p. 201, 1880.

⁴ Italics my own.

I would like to call attention to the jaundice which furnishes an analogue to my case.

Similar lesions, namely, bedsores, septic infection, emphysema, and fat embolism, were also found in the third case reported by Jolly (maniacal excitement in supposed syphilitic insanity). This patient had also bruised and otherwise injured himself during the excitement.

In both cases there was evidently septic infection, either complicated by or manifesting itself under the form of malignant œdema, according as we assume that it supervened on a septic condition produced by the bed sore, or that malignant œdema itself may be one of the forms of septic infection.

Jolly's observations antedate Koch's publications on malignant œdema; hence they are not diagnosed as such. I myself remember having seen a general paralytic die with the symptoms of extensive emphysema, and bluish-red suggillations over the chest and abdomen. This individual had been suffering for several weeks preceding his death from a deep, cavernous bed sore on the right hip. He died suddenly. To-day I would set down the cause of death as malignant œdema with fat embolism.

Basing my conclusions on the results of pathological investigation in the case detailed by me, and reasoning from other instances, I would say that malignant œdema in man is apt to make its appearance in low states of nutrition, in the chronically insane, for instance, or in persons otherwise run down in health and weakened by previous, especially infectious disease. Whether it ever occurs in a body free from pathogenic germs, or whether it is simply an accompaniment to other putrid infections, is an open question. It may be that, when it occurs in diphtheria, it is only in the "septic" forms of that disease that it is observed. The fact that in our patient the gas formed in the subcutaneous areolar tissue was fetid, tends to show that in addition to the bacillus of malignant œdema there must have been other microbes at work which elaborated the fetid gases; for the gas of experimental malignant œdema has no odor, *i. e.*, the bacillus under consideration cannot be ranged among the putrefactive microorganisms. With the exception of the uterus, however, in which rare colonies of micrococci could be demonstrated, no microbes differing morphologically from the œdema bacillus could be made out.

Since writing the above I have had occasion to examine the organs of two cases of putrid infection after abortion resulting in death; no trace of malignant œdema could be discovered.

REVIEWS.

A MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By W. R. GOWERS, M.D., F.R.S. Vol. II. DISEASES OF THE BRAIN AND CRANIAL NERVES. GENERAL AND FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM. Pp. viii. 975. London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co., 1888.

THE expectations excited by the first volume of this manual of nervous diseases, in which diseases of the spinal cord and nerves were so admirably treated, are fully realized by this second volume, which deals with diseases of the brain and general nervous affections. It may be said, without reserve, that this work is the most clear, concise, and complete text-book upon diseases of the nervous system in any language. And when the large number of such works which has appeared in Germany, France, and England, within the past ten years is considered, this implies high praise.

To the general practitioner Gowers' book offers a great boon; for the easy, pleasant style and clear diction aid greatly in the explanation of difficult subjects. The author has appreciated how severe a strain it is upon the attention of the general reader to follow the intricacies of the examination and diagnosis of many nervous affections. He, therefore, paves the way by a concise review of the structure and functions of the brain, devoting the first sixty-six pages to this important subject. It is now generally admitted that the only proper method of teaching brain anatomy is to describe functional areas of the cortex and their connection by nerve tracts with their related organs, and thus by conveying a notion of the physiology of the anatomical structures, to lay a foundation for the understanding of the results of disease in those structures. This method, long taught in Germany, finds in this manual its first complete presentation in the English language. Any one who masters the first sixty-six pages of this volume may feel that he is abreast of the best work done in the last ten years—a period which has virtually revealed brain anatomy. And he will be aided in his study by the many new and graphic illustrations which abound in this section.

The importance of this section is evident when the symptoms of brain disease, which are considered in the second sixty pages, are reviewed. For here symptoms are constantly referred to lesions, and shown to depend upon the seat of the disease and on the nature of the change that the nerve elements undergo, rather than on the pathological character of the primary lesions. Symptoms are classified into motor, including paralysis, spasm, and convulsions; sensory, including pain; mental, including delirium, loss of consciousness, and apoplexy; affections of speech; ophthalmoscopic and general symptoms. This section

is crowded with important information, and contains many original suggestions regarding the explanation of facts observed. The only criticism to be offered is that it might well have been made somewhat less concise. So much is condensed in the various sections that they require careful study. But those who desire a fuller discussion can find it in the little volume of the author on the *Diagnosis of Diseases of the Brain*.

The section on aphasia is especially interesting. Motor and sensory aphasia are clearly separated and their varieties discussed.

"The subject abounds in difficulty arising partly from its complexity and partly from the uncertainty due to a deficiency of facts and the obscurity produced by a redundancy of theory. The clinical facts may be and have been variously explained; and it is almost startling to find how small is the ground on which some theories are based, and how much deficiency of fact a clear diagram may hide. Hence, an attempt to state the definite knowledge we possess may seem to be at once meagre in scope and hesitating in assertion. But if the certain knowledge is insufficient to enable us to explain all the complex phenomena, it furnishes a definite starting place from which to investigate them; and if the obscurity is recognized, we may be saved at least from misplaced confidence." (Page 103.)

This careful adherence to fact and avoidance of theory is characteristic not only of this section but of the entire book.

Diseases of the cranial nerves are next considered, one hundred and fifty pages being devoted to this section, the optic, ocular, and facial nerves receiving the fullest comment. Here the wide clinical experience, careful observation, and extensive reading of the author become evident. The views of authorities are presented, his own cases brought into comparison, and free criticism offered. From this point onward the book becomes not only a compendium for the general practitioner, but a valuable work for study and reference for the nervous specialist. The error so apparent in a number of American, English, and French text-books on nervous diseases, which consists in compiling a work from the observations of other writers, without the critical sense which experience alone conveys, is happily avoided. And the work becomes in consequence an original contribution to the knowledge of nervous affections, second to none which has appeared. It is not the function of the general reviewer to enter upon the discussion of special matters of dispute. But he may direct the attention of the specialist, as well as of the general reader, to this work as a model.

The chapter upon the localization of cerebral disease is perhaps less extensive than the subject warrants, but the facts had been partly considered in the first chapter, and the conclusions are stated in a concise form. Gowers has seen crossed amblyopia from lesion of the inferior parietal lobule, but he admits that disease of the cuneus produces hemianopia, and is inclined to locate the visual area in the occipital lobe. "The theory which best explains the fact is that on the outer surface, in front of the occipital lobe, there is a higher visual centre in which the half fields are combined and the whole opposite field is represented." This is certainly difficult to conceive, and the facts upon which such a theory is based, appear to be open to objection, it being admitted that a very careful examination of intelligent patients is necessary to distinguish crossed amblyopia from bilateral hemianopsia. So little has been written about the localization of the tactile sense in the cortex,

that it is worthy of note that Gowers regards the parietal lobe as having some connection with this function. "Extensive disease of the whole parietal lobe seems to impair sensibility in the trunk and limbs on the opposite side." Other conclusions are similar to those announced in 1878, by Nothnagel, and so fully confirmed by other observers in all countries since that time.

The chapters upon organic affections of the brain and its membranes contain admirable summaries of all the available facts, as well as occasional original contributions. The parts devoted to pathology and differential diagnosis are carefully written and very complete. Gowers has not, however, the faculty of so enumerating symptoms as to give one a vivid clinical picture of a disease, and the sections treating of symptoms would be comparatively unsatisfactory were they not enriched by personal observations and by very successful attempts to connect individual symptoms with pathological processes. An important omission is the lack of a chapter upon cerebral syphilis. It is referred to in several of the sections, but deserves a special section. The chapters on treatment would have been more complete had more attention been given to the subject of cerebral surgery, but Gowers says that "of the ultimate success of the operation it is too soon to speak."

About four hundred pages are devoted to the consideration of general and functional nervous diseases, which Gowers believes to be traceable to more than a mere disturbance of function, and to depend upon alterations in the nutrition of the nerve elements. He traces chorea to a tendency to spontaneous action of nerve cells on the cerebral cortex, due to a lowered power of resistance, and points out in support of this theory that it is a disease which occurs when the functional education of the nerve centres has been to a large extent effected, but is not yet complete, when the directions of functional activity and the lines of resistance have been developed, but have not yet received that stability which only long-continued action, with its underlying nutrition, can achieve. In discussing the relation of rheumatism and endocarditis to chorea, he discards the embolic theory of chorea as insufficient to explain the majority of cases, and adopts the old theory that the common cause of all three diseases is a blood state, or a condition of the system, including the blood, allied to that which causes acute rheumatism—probably of a chemical nature. Holding this view, it is natural that Gowers should urge general treatment in chorea, rather than reliance on special drugs, though he recommends arsenic. In slight chronic cases he uses strychnine. Electricity has no influence on the disease.

Tetanus, tetany, and the occupation neuroses, as well as paralysis agitans, and other forms of tremor, receive full consideration. In the chapter on epilepsy the author has drawn largely upon the facts already collected in his work on this subject, but has increased them by the observations of the past seven years. The discussion of the symptoms of epilepsy, especially the aura, is very interesting.

"The fact that the aura is the result of the commencing central process renders its study of great importance, since it gives us information of the functional region of the brain in which the process of the fit begins." (Page 682.)

"The teaching of pathology is that disease which excites convulsions is most frequently at the cortex, and that whenever organic disease causes convulsions that begin locally, the disease is almost invariably at the cortex.

In idiopathic epilepsy, the convulsions sometimes begin in this manner, and this suggests very strongly that in such cases the change occurs in the cortex." (Page 697.)

"When a lesion interrupting the internal capsule occurs in a person subject to general epileptic fits, the effect is that the fits which before were general almost cease on the paralyzed side. Such cases show that the discharge causing the general convulsions occurred above the internal capsule—i. e., in the cortex of the brain." (Page 698.)

"The vasomotor theory of epilepsy is alike unneeded, unproved, and inadequate. The phenomena indicate that there is discharge of gray matter. Epilepsy must be regarded as a disease of gray matter, most frequently of the gray matter of the cortex. The phenomena of epilepsy suggest that the instability of the gray matter, its tendency to discharge, depends on instability of resistance, rather than on any primary change in the energy-producing action of the cells." (Page 699.)

"All treatment in epilepsy must be long continued, and bromides are the most reliable of all the drugs mentioned, the acne produced by them being checked by arsenic. The best results are usually obtained with not more than a drachm of bromide a day; if this does not arrest the attacks, larger doses rarely succeed, and combinations of bromide with other drugs are more useful. It may be given two or three hours before the attack occurs if that comes at a regular time. It should be continued two years after the last fit." (Page 706.)

The various neuralgiæ, vertigo, migraine, exophthalmic goitre, and the toxic neuroses receive ample consideration. The article on hysteria is very complete and very suggestive. The fact that hysteria may complicate serious organic disease, as well as simulate it, is emphasized, and the necessity of guarding against the danger of being satisfied with the diagnosis of hysteria alone is enforced.

The subject of neurasthenia deserves a more careful study than is accorded to it by the author, but English specialists fortunately see less of this disease than do Americans, and hence know less about it.

The appearance of the book is attractive, the printing is clear, and the figures are excellent.

M. A. S.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Volume the Fifth. Edited by J. EWING MEARS, M.D., Recorder of the Association. 8vo. pp. xxiv., 383. Philadelphia: P. Blakiston, Son & Co., 1887.

A GLANCE at the tables of contents of these annually recurring volumes will enable the reader to learn what are some of the pressing surgical questions which have presented themselves to surgeons each year, as quite naturally the tendency is common among us to dwell upon those things which are novel, and to test those things of which the advantages and benefits as yet rest upon no certain basis of extended trial and observation. Accordingly, we find in the current volume two papers upon suprapubic cystotomy, one by Dr. Dennis, of New York, and one by Dr. Packard, of Philadelphia, while laparotomy for injuries of the intestines is considered in four articles from the pens respectively of Warren, of Boston, Kinloch, of Charleston, and Nancrede and Keen, of Philadelphia. From the perusal of these and other papers it is

impossible to resist the conviction that the improved methods under which the high operation upon the bladder is now done, and which led to its reintroduction to the profession, have given to it a prominent position, and one which it will probably continue to maintain.

Heralded by the immense advances made in abdominal surgery laparotomy has also acquired a position full of promise. It may not be that intestinal wounds have lost their gravity, far from it, but the writers of the papers contained in this volume, and those who have recorded the results of their experience with it elsewhere, have opened for us a door of hope which will not readily be closed, but which we firmly believe will be flung wide back for an increasing number of men to walk through and benefit many of their suffering brethren. In the light shed upon laparotomy for gunshot wounds of the intestines by the cases narrated by Drs. Keen and Kinloch, and referred to in the course of the very interesting discussion which followed, we are no longer left to the desperate inaction which has so long been the rule of practice prevailing hitherto. The condition may be very bad indeed, and the hope but slender, yet he does not require the prevision of a prophet who does not see in the results of many recent laparotomies ground for much encouragement. Of course, and the fact was adverted to in the discussion, many cases recover without operative interference, but we incline to think that these recoveries do not establish a rule, but rather furnish instances of the wonderful recuperative powers of nature to which we are so often indebted, but upon which we cannot wisely rely to the exclusion of the aid to be derived from a rational operation and one which has lost many of the terrors which formerly surrounded it.

The address of Dr. McGuire, the retiring President, is concerned with the value and importance of associated effort in attempting the elucidation of the grave and abstruse problems which come before scientific medical men; together with suggestions looking to the greater efficiency of the Society he addressed. These transactions are of increasing importance, and their issue one among the important annual surgical events.

S. A.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Vol. xii., for the year 1887. 8vo. pp. 512. New York: D. Appleton & Co., 1888.

Of the fifty-eight active Fellows of this Society, forty-four were present at the last annual meeting, which was held in New York, and which derived additional interest from the fact that a number of invited guests were present from foreign countries and took part in the discussions, and three of them also read original papers. The sessions were also largely attended by native visitors from other cities. Prof. Alexander J. C. Skene delivered the annual address; and at the close of the sessions, Dr. Robert Battey, of Rome, Georgia, was honored by an election as his successor. In reviewing this creditable volume we shall confine our remarks to a few prominent points.

In the paper by Dr. Thomas Addis Emmet, of New York, on "The Causes and Treatment of Uterine Displacements," we find that he holds to the opinion that there is a certain "health line," in every woman,

varying in each, which her uterus should occupy if its circulation is to continue normal, and its veins empty themselves without over-distention. This he has repeatedly tested, by replacing and holding the organ with a finger, until the pulsation first felt in the circular artery gradually ceased. If the uterus be lifted too high, the same inconvenience is produced as results from its prolapse. Dr. Emmet stated that his experience taught him that pelvic inflammation was, perhaps, more frequent here than it was said to be abroad; and was quite as common among single as married women. He also claimed that retroversion with adhesions was often relieved by a spontaneous process of absorption with replacement.

Dr. Samuel C. Busey, of Washington, read a paper on "Cystocolpocoele (prolapse of the bladder) Complicating Pregnancy and Labor," a rare form of dystocia, of which he had collected the records of thirty-six cases. As this condition may be mistaken for the bag of waters, a differential diagnosis is highly important. The subject is fully treated and deserves to be carefully read by obstetrical workers.

The paper, "Are the Tubes and Ovaries to be Sacrificed in all Cases of Salpingitis?" by Dr. William M. Polk, of New York, is on certainly one of the important questions of the day, and one upon which much is yet to be learned. There are cases in which the use of the knife is at once demanded; there are others in which it should only be resorted to when curative measures, long tested, have failed; and there are those also in which the nature of the lesion does not appear to render ablation essential. The dangers of tubal rupture are rarely imminent, and the avoidance of mutilation should be carefully considered. Dr. Polk, and those who discussed his paper, generally favored conservative measures; notably, Drs. Martin, of Berlin, Bantock, of London, and Emmet, of New York.

"Drainage after Laparotomy," by Dr. Paul F. Mundé, of New York, is also a subject upon which there is much difference of opinion as to certain cases, and a much more general concurrence as to others. A few operators never use drainage, others insert a tube in the majority of cases, and others again, like Dr. Mundé, are inclined to avoid its use more and more, under the test of experience. It is invaluable in some cases, and injurious in others; but the difficulty is, to determine when it may be safely dispensed with. When in a decided doubt as to whether it would be safe to leave it out or not, it is wiser to use it if only for a day. Excellent results have been obtained where it was never used; but, on the whole, patients recover more rapidly where it is employed after the separation of intimate adhesions.

"On the Treatment of the Pedicle in Supravaginal Hysterectomy." In this paper, Dr. George Granville Bantock, of London, advocates the extraperitoneal plan of dressing the stump, claiming a greatly increased success since he gave up the intraperitoneal method. Dr. August Martin advocated the dropping in of the stump. Thus far the latter treatment has had the higher rate of mortality, and particularly so, by sepsis and hemorrhage.

"The Intrauterine Stem in the Treatment of Flexions," is the title of a paper by Dr. A. Reeves Jackson, of Chicago, in which he states that he obtains uterine tolerance by the introduction of bougies, and then makes use of elastic rubber stems of different sizes and degrees of stiffness. He reports a series of sixty-seven cases in which pregnancy followed the

treatment in ten patients; a large proportion of the cases are reported as having been cured.

"Extrauterine Pregnancy and its Treatment by Electricity." Dr. Ely Van de Warker, of Syracuse, reported one case of extra-, and two of intrauterine pregnancy, in which he had used the galvanic current effectually, as a foeticide. The discussion showed that experienced gynecologists at home and abroad fully believe in the possibility of detecting the presence of ectopic foetal cysts in their early stage, prior to rupture. Mr. Tait denies this ability, it is true, but his claim can have little weight, since he has recently stated before the British Gynecological Society, that he had met with but a single case of tubal pregnancy prior to rupture, and in it he failed to make a diagnosis, "for the woman had not even missed a period;" her "symptoms had been obscure pain of several months standing—in fact, the usual symptoms of salpingitis." In Dr. Van de Warker's case, a complete decidua was passed, and the tubal growth was detected by palpation; the history and symptoms of the case were also such that Dr. Mann, of Buffalo, confirmed the diagnosis of the narrator.

"The Hystero-neuroses," by Dr. George J. Engelmann, of St. Louis, is an exhaustive article occupying 155 pages, or exactly one-third of the text of the volume devoted to original papers and discussions. The volume, as a whole, contains much interesting matter, and well sustains the high reputation of the Society.

R. P. H.

DU CATARRHE CHRONIQUE; HYPERTROPHIQUE ET ATROPHIQUE DES FOSSES NASALES, DE L'OZÈNE, OBSTRUCTION CATARRHALE DES TROMPES D'EUSTACHE; VÉGÉTATIONS ADÉNOÏDES DU PHARYNX. TRAITEMENT PAR LA GALVANO-CAUSTIQUE CHIMIQUE.

CHRONIC CATARRH OF THE NARES, BOTH HYPERTROPHIC AND ATROPHIC. OZÆNA; CATARRHAL OBSTRUCTION OF THE EUSTACHIAN TUBES, AND ADENOID VEGETATIONS OF THE PHARYNX. TREATED BY MEANS OF CHEMICAL GALVANO-CAUTERY. By DR. GARRIGOU-DESARÈNNES, Professor of Otology and Rhinology, etc. 8vo. pp. 238. Paris: Adrien Delahaye & Co., 1888.

IN this brochure the author claims to have been the first to establish the electrolytic or chemical galvano-caustic treatment in chronic catarrh of the nares, in ozæna, and in catarrhal narrowing of the Eustachian tube. He has already published his results, but his present object is to lay before his readers the results of a long-continued practice of this method of treatment.

Among those affected by catarrhal inflammation of the Eustachian tubes many are at the same time affected by chronic catarrh of the nasal fossæ, and in many instances the aural lesion is but the consequence of propagation of the naso-pharyngeal lesion. Many of those thus affected think at the outset that their malady is of a trifling nature, referable to a neglected cold in the head, and pay no attention to the nasal catarrh unless it becomes offensive in odor, or unless one or both ears become dull of hearing by extension of the catarrh to the Eustachian

tube. It becomes the duty of the physician promptly to recognize this disease, and in order to prevent its consequences, to apply as soon as possible a treatment to ward off further advance of the catarrh or to cure its bad effects already developed. The aurist, therefore, will often have to confront both nasal and pharyngeal affections. The author believes that in the treatment he sets forth in his book the physician will find an efficacious means of curing these maladies.

He then describes the diseases to which the electrolytic treatment is applicable; first, chronic catarrh of the nares with its forms and complications, then ozæna, catarrh of the Eustachian tube, and adenoid tumors of the naso-pharynx, the symptoms of which closely resemble those of chronic hypertrophic nasal catarrh. Subsequently the method of applying the electrolytic treatment is fully given with illustrative cases.

We must confess that our confidence is somewhat shaken when on page 44 we meet a figure (No. 19) of a machine by which it is proposed to inject vapors into the external ear for the cure of chronic aural catarrh, because it does not seem that such a method is in accordance with the canons of cautious and rational otology.

The form of the electrodes for the nares, long, blade-like implements, suggested by the author for conveying the electric current to the turbinated bones, does not seem free from the character of heroic treatment. This feeling is rather increased and confirmed by Fig. 83, p. 171, which portrays these electrodes *in situ*, in the nose, ready for operation. It is claimed by the author that the method is painless. As this form of treatment is recommended for ozæna, syphilitic disease, and scrofula of the nares, great care certainly should be exercised in always having a large number of fresh, clean electrodes on hand, because the electrolytic current passed through these electrodes is not sufficient, in fact is not intended to be sufficient, to burn them clean.

This treatment is essentially that suggested some years ago by Weber-Liel, of Berlin, and others. Your reviewer can but express again his conviction, attained at that time, that the supposed benefit obtained by this mode of treatment is in reality due to the passage of the catheters, bougies, etc., under the name of electrodes, into the nares and Eustachian tubes. It must also be borne in mind that while the so-called electrolytic treatment is in progress the nares are also treated by sprays, etc., very well calculated to improve their condition. We cannot, therefore, heartily endorse the methods specially set forth in the book we have just reviewed.

C. H. B.

THE PASSAGE OF AIR AND FECES FROM THE URETHRA. By HARRISON CRIPPS, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital; late Surgeon to the Great Northern Hospital; Author of "Diseases of the Rectum and Anus," and Jacksonian Prize Essay on Rectal Cancer. 8vo. pp. 77. London: J. & A. Churchill, 1888.

THE result of Mr. Cripps' study of this rare condition cannot fail to be of service to the profession, since he has demonstrated, contrary to all general opinion, that "indisputably entero-vesical fistule are far more

commonly the result of inflammatory mischief than due to perforation from cancerous growth. The prognosis and hope of benefit by treatment are thus more favorable than could have been anticipated."

Mr. Cripps's assertion that this condition is an uncommon one, founded upon the fact that he has been able to collect only sixty-three cases, is, in the main, correct, but he forgets that, because of its supposed cancerous origin in all cases, this complication is looked upon by the mass of the profession as not worth reporting. Mr. Cripps has overlooked at least one case which we have ourselves published, and we have also seen three other cases as yet unreported. If, then, one surgeon can, in his own experience, recall four cases, this accident must be commoner than the author believes.

Mr. Cripps scouts the possibility of gas arising in the bladder from decomposition of the urine, and concludes that "the passage of air with the urine is positive evidence of a communication existing, either directly or indirectly between the bladder and bowels."

Of the sixty-three cases quoted in the appendix, two were traumatic, forty-five inflammatory, seven unascertained, and only nine cancerous; this latter unexpected fact being explained by the tendency of the rapidly formed fungoid granulations of carcinomatous ulcers to block up any cavity formed by sloughing or ulceration. Inflammatory perforations have been usually the result of abscesses, which, the author thinks, in the majority of instances, started from "the inflammation set up by accidental perforation of the bowel by fragments of bone or other foreign bodies."

The prognosis is most unfavorable, death occurring in from a few months to about two years, unless surgical interference has been resorted to, except in a small percentage of cases where a spontaneous cure has been effected.

The site of the opening is of the utmost importance, as this must determine the plan of treatment. The communication was with the rectum in twenty-five cases, with the colon in fifteen, with the colon and small intestine in five, unascertained six, while the small intestine was alone affected in twelve instances. The site of primary disease may, in a few instances, be in the rectum, yet the resultant abscess may extend high up, bursting, perhaps, into the ilium, or cæcum, and bladder. In general terms, the fistulæ involve the large twice as often as the small bowel, and are so situated that a left lumbar colotomy will relieve the trouble. It being essential, when possible, to ascertain the site of the bowel opening, a careful examination of the rectum under anæsthesia, injecting milk into the rectum after passing a catheter into the bladder, when the prompt return or the reverse of the milk through the instrument will indicate a rectal or higher opening, and an examination of the character of the fecal matter passed from the bladder, will usually decide the question. "If ill-digested material is passed from the bladder, while, at the same time, the rectal motions contain no undigested matter, the fistula will probably communicate with the small intestine," and *vice versa*.

After mentioning abdominal section and suprapubic cystotomy, colotomy is decided to be the only operation advisable, since, when the small intestine is involved, it is impossible to determine where to make the artificial opening, and it is conclusively shown that the condition after this operation is far more comfortable than is generally supposed. Our personal experience coincides with Mr. Cripps's, and we can testify

to the enormous relief and rapid closure of the vesical fistule after this operation. A milk diet preferably, in any event a simple one, the avoidance of any special article which aggravates the condition—as is not uncommon with some patients—enough opium at night to confine the bowels, with washing out of the bladder, will often render life endurable for these patients, whose suffering is too often truly excruciating.

We trust that from these few extracts our readers will be induced to study carefully this genuine contribution to the sum of surgical knowledge.

C. B. N.

A MANUAL OF TREATMENT BY MASSAGE AND METHODICAL MUSCLE EXERCISE. By JOSEPH SCHREIBER, M.D., Mem. of K. K. Gesellschaft der Aertze of Vienna, etc. Translated, with the author's permission, by WALTER MENDELSON, M.D., of New York. 8vo. pp. 285. Philadelphia: Lea Brothers & Co., 1887.

THE book which forms the basis of this notice is a very important contribution to the subject of mechanical therapeutics. Its introductory chapter gives a complete history of the mechanical treatment of disease. The subsequent chapters, which are amply illustrated with woodcuts, treat of massage and its physiological effects, describe the necessary mechanical appliances and bodily movements, the physiological effects of gymnastics on the circulation and the heart, on the skin and kidneys, on the deposition of fat, on respiration, on digestion, and on the central nervous system and mind; and the concluding chapter is devoted to a consideration of the diseases to which mechano-therapy is applicable.

The most bulky and probably the most serviceable part of the work is that which is comprised within the last chapter. In it is discussed the mechanical treatment of neuralgia and muscular rheumatism, of sprains, of chlorosis, chronic catarrhal gastritis, phthisis, neurasthenia, hysteria, hypochondriasis, diabetes mellitus, cerebral congestion, pulmonary emphysema, constipation, chorea, and writer's cramp.

The value of this mode of treatment is thus evidenced by its wide range of applicability. Personally we can speak of its great utility in the treatment of pulmonary affections. The most serious of these are unquestionably due to a local and general physiological inactivity. The great mass of people rarely breathe sufficiently deeply to expand fully the lung apices, hence the nutrition and function of these areas are impaired, and their vulnerability to disease is increased. Then, too, this danger is aggravated by the strong tendency in our daily life toward the production of muscular inertia. Years ago muscular locomotion was universal, but now it is greatly superseded by riding in easy carriages, cars, and tram-wagons; manual labor is replaced by machinery; and active outdoor work is supplanted by occupations which demand a quiet and stooped position of the body, and especially of the chest; all of which interfere with the healthy expansion of our respiratory organs. Therefore, under these circumstances, the enforcement of measures which have in view the object of arousing the molecular and passive lethargy of the body, such as massage, walking, running, bowling, pulmonary and

general gymnastics, etc., we have found to be of incalculable benefit in the treatment of these diseases.

There can be no question that mechano-therapeutics is deservedly a most popular and promising branch of the healing art. It is not received with favor, however, as the translator of this work would have us believe, on account of a growing tendency in the profession to discard drug treatment, but because, like everything else, its application and modus operandi are more simple, and hence more comprehensible, than the more complex and intricate action of drugs. T. J. M.

THREE HUNDRED AND EIGHTY-FOUR LAPAROTOMIES FOR VARIOUS DISEASES, WITH TABLES SHOWING THE RESULTS OF THE OPERATIONS AND THE SUBSEQUENT HISTORY OF THE PATIENTS. A RÉSUMÉ OF THE WRITER'S EXPERIENCE IN ABDOMINAL SURGERY DURING THE LAST FIFTEEN YEARS. By JOHN HOMANS, M.D. 8vo. pp. 56, and extensive Tabular Appendix. Boston: Nathan Sawyer & Son, 1887.

THIS little book comes to us much in shape and plan, excepting the addition of tables, like the work of Keith on *Uterine Fibroid Tumors*. But in little else does it resemble the latter, and a severe disappointment awaits the secker after knowledge who eagerly opens the book, expecting from its title and author to obtain information and experience of the greatest worth. The work presents no novelty, and its principal deficiency is an almost entire absence of conclusions and deductions from such a field of observation as 384 laparotomies should afford. The cases are all most elaborately tabulated, the tables forming more than half the book, but from them no deductions are drawn or percentages made out.

What the book principally tells is that the author has performed a large number of abdominal sections; that, considering that most of the 384 operations were done in private hospitals, he has had fair success with ovarian cysts, and not much more than poor results with his other operations; that he has gone to infinite pains to get his tables stocked with the subsequent progress of the cases, and that he has added very little to our knowledge of the subject of which his work treats.

His method of operating is detailed in the text, but we find it entirely conventional. Next come several pages of general remarks. All of Dr. Homans's ovariectomies, five in number, died until antisepsis was adopted; since that time he has performed 282 ovariectomies with a death-rate of 12 per cent., and once had a run of thirty-eight consecutive recoveries. One-fourth of his ovariectomy deaths he honestly attributes to fault or carelessness of his own. 12 per cent. of the recoveries developed hernia through the wound cicatrix. He believes that post-operative obstruction of the bowels arises from paralysis, due to peritonitis in nearly all instances. Fifteen of the total number of cases were drained, and the author remarks that he is reducing the sizes of his drain tubes. We are inclined to think that many of the cases might have done better had they been drained. No mention is made of any attempt to

save cases developing peritonitis by reopening, washing out, and draining. In a case of hysterectomy the bladder wall sloughed to the extent of a square inch, but the fistula closed after a Sims's catheter had been kept in position continuously for six weeks. Nine cases of ovarian cyst stitched to the abdominal wall recovered. Most amazing, at this date, is the statement that the author has operated upon but a single case of purulent or other salpingitis, or ovarian abscess of gonorrhoeal origin!

Next follow 45 pages of detailed histories of selected or "illustrative" cases, which are worth reading for the curious and interesting, but not very instructive, conditions which many of them presented or developed. Then comes the appendix of tables, which bespeak most praiseworthy patience and labor in their compilation, but again suggest falling short of the mark, as the mine is undeveloped, the facts unmarshalled.

In those cases where but one ovary has been removed and children subsequently born, the sexes did not correspond to either ovary.

As this report is the first of its kind of a large number of cases in an American surgeon's practice, it is much to be regretted that the material has not been more efficiently handled and that the results do not compare more favorably with those of other operators of large experience.

T. S. K. M.

THE TREATMENT OF HEMORRHOIDS BY INJECTIONS OF CARBOLIC ACID AND OTHER SUBSTANCES. By SILAS P. YOUNT, M.D., Physician to St. Elizabeth's Hospital, Member American Medical Association, Member Indiana State Medical Society, and Member of the Tippecanoe County Medical Society. Second edition. 8vo. pp. 102. Lafayette, Indiana: 1888.

WE are entirely at a loss to understand the *raison d'être* of this book, since there are already so many excellent and *scientific* treatises on the same subject. The whole gist of the work consists in two implied or plainly worded statements, viz., that none but a rectal specialist can properly treat hemorrhoids—presumably by preference the writer—and that carbolic acid in very weak solutions is the only proper and scientific treatment for these diseases. Both these propositions we deny, believing as we do, that any hospital surgeon is better fitted to treat rectal cases than the so-called specialist, and knowing that as there is more than one variety of internal piles, so there should and must be more than one method of treatment. We do not deny the advantages of injections with carbolic acid in certain cases, but we do deny that it is the *only* proper method for *all* cases, or that it demands any occult skill or knowledge requiring the printing of a book of over one hundred pages.

C. B. N.

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF
ROBERTS BARTHOLOW, M.D., LL.D.,
PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS, AND HYGIENE IN
THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE CARBOLIC ACID TREATMENT OF SMALLPOX.

A recent epidemic of variola at Naples has induced DR. MONTEFUSCO to make trial of carbolic acid in the hospital Cotugno. The treatment has consisted in the topical as well as internal use of carbolic acid, and the results are given in the *Bull. Gén. de Thérap.* of April 15, 1888. The local treatment has consisted in the application of a paste made by mixing carbolic acid with oil and carbonate of lime, which is applied with compresses in confluent patches. He concludes, however, that this practice is no more effective in its results than the mode now in use of water compresses.

The internal use of the remedy, on the contrary, is found to be highly effective. It lessens the fever-heat, and in most cases the temperature remains low. In a few instances a severe rigor preceded a new exacerbation of fever, but no untoward accidents occurred. An impression is made on the eruption also, which, becomes smaller in extent, matures earlier, the period of suppuration is shortened, and the scab dries and falls off sooner than is usual.

INHALATION OF VAPOR OF FLUORHYDRIC ACID.

The newest *fad* in inhalation therapeutics is the use of fluorhydric acid vapor. Various mechanical appliances have been proposed for the purpose by Bergeron, Bardet, Dupont, and others (*Bull. Gén. de Thérap.*, March 15, 1888). Whilst they differ in form, the principle remains the same. A reservoir to contain the vapor, a mask to fit over the nose and mouth, and a hand-ball air-pump are the essential parts. BARDET advises mixtures containing fifteen, twenty, and thirty per cent. of the fluorhydric acid of commerce; two *séances* every day, of forty minutes each.

DR. JARJAVAY mentions a simple arrangement proposed by M. Constantin Paul. It consists of a Wolff bottle with two outlets—one for attaching the

inhalation tube and mask, and the other for the inlet tube with air-bag pump. A solution of *fluoride of ammonium, two per cent.*, is put in the bottle containing water Saint Galmier, by means of which the gas is separated.

Other antiseptic gases may be combined with the fluorhydric vapor, as carbonic, sulphydric, etc. The bottles used should be made of gutta-percha, as the vapor, when sufficiently concentrated, attacks glass.

Dr. Jarjavay, in summing up the advantages of this treatment, says that much good is effected by it, although it cannot be considered to cure, using the word in its proper sense. Such symptoms as cough, loss of appetite, insomnia, sweats, expectoration, etc., are rapidly improved.

RESORCIN IN ULCERATION OF THE TONGUE.

The good effects of resorcin, applied to ulcers of the mucous membrane, have been observed for some time. MR. MAXWELL, of Brighton (*The Lancet*, April 21, 1888), publishes a case in which an ulceration of the tongue, having an aspect of malignancy, was much benefited by the same. The method consists in the application of finely powdered resorcin dusted over the surface to be acted on. It may be mixed with bismuth—the salicylate or other combinations, as desired.

AMYLEN HYDRATE.

Additional evidence comes forward as to the hypnotic and antispasmodic action of amylene hydrate (*Centralbt. für die gesamte Therapie*, April, 1888). DR. FRANZ GÜRTLER reports the results of its use in the Königsberg Poliklinik. Formulæ corresponding to those given in our last issue were used. In children it is given in pill with milk or mucilage, and capsules are preferred for adults. The dose varies from two grains in children to eighty grains in adults, and in one case of alcoholic delirium Görtler gave one hundred grains. The cases in which given with varying, but, on the whole, good results, were alcoholic insomnia, hemicrania, morphiomania, epilepsy, cystitis, whooping-cough, etc.

THE TOXIC EFFECTS OF TIN.

The universal use of tin vessels in domestic affairs renders its action on the human organism especially interesting. It can no longer be regarded as innocuous. UENGER and BODLANDER have investigated its action, and find that many articles of domestic use will attack and dissolve the metal (*Zeitschr. für Hygiene*, quoted by *Bull. Gén. de Thérap.*, April, 1888). The salts of tin have an action that corresponds to those of lead, zinc, copper, etc., although less powerful. The administration of powdered tin for the expulsion of round worms, still practised in some countries, is not, therefore, without danger.

THE TREATMENT OF THE MUSCULAR ATROPHY OF PHTHISIS.

One of the professional novelties that make their appearance so often now, is the atrophic degeneration of the muscles of respiration. It is not our province to discuss the pathological relations, but we must call the attention of our readers to the best means of cure. In a communication to the Medical Society

of Bordeaux, DR. BOMPAR gives an elaborate account of the best means of restoring the affected muscles (*Revue de Thérap.*, April 15, 1888). He advocates the use of gymnastic movements according to the method of M. Peter—"the gymnastics of apposition"—by which the muscles of the upper thorax are brought into action. Faradization is also necessary. The faradic excitability of the affected muscles may be much lowered by the atrophy. Several years ago we called attention to the remarkable effects of static electricity in these cases, and more recently of galvano-faradization, as a means of restoring the activity of the respiratory muscles.

ERECTILE TUMOR CURED BY ELECTROLYSIS.

M. BORIES, of Montaubau (*Rev. de Thérap.*, April 15, 1888) reports a case of arterial anginoma cured by electrolysis. The tumor had grown rapidly, and severe hemorrhages had occurred. A daily application for four months, both needles introduced, was the mode employed.

THE ABSORPTION OF LANOLIN.

MUNK (*Thérapeut. Monatshefte*, March, 1888) maintains that lanolin has not the property of diffusion through the skin, and hence it can be successful for local use only.

FORMULÆ.

The following combinations (*Rev. de Thérap.*, April 15, 1888) have merit:

R.—Salol	3j.
Ether	3j.
Dissolve and mix with elastic collodion	3j.—M.
Sig.—For topical use in cracked nipples.	
R.—Lard	5j.
Tannin	Div.
Acid nitrate of mercury	12 gtt.—M.
For application to old ulcers of syphilitic origin.	

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE
UNIVERSITY OF PENNSYLVANIA.

WALTER MENDELSON, M.D.,

PHYSICIAN TO THE ROOSEVELT HOSPITAL, OUT-
DOOR DEPARTMENT, NEW YORK.

ON CHRONIC PROGRESSIVE CHOREA. [HUNTINGTON'S CHOREA; HEREDITARY CHOREA.]

Still another group of cases of Huntington's chorea are to be added to those referred to in the April number of this journal. HOFFMANN (Vir-

chow's *Archiv*, cxi. 3, 513) reports in full four very interesting cases. Three of these included two brothers and a sister; the fourth being a female cousin. All were attacked at about the age of thirty to forty years, except one, who developed the disease while still at school, having had epilepsy since between two and three years of age. The family history is briefly as follows: Two men of the oldest generation were probably affected by the disease. Next, the grandfather, Waldi, was choreic for several years before his death between fifty-one and fifty-two. It is not certain whether he was mentally affected. Three of his nine children were choreic. The first was attacked at the age of forty, and became weak-minded. One of her two children became choreic at ten; developed imbecility later, and died at nineteen. Another of Waldi's children showed signs of chorea at thirty, and later became insane. She had nine children, of whom three were the first three patients mentioned, and two others were attacked by the same disease, at the ages of thirty and forty respectively. A third choreic child of Waldi's son exhibited the first symptoms at thirty-eight. There was no mental disturbance. His daughter is the fourth of the choreic patients whose case is detailed. The disease, therefore, extended through four generations, and attacked thirteen persons. None of the children of the fifth generation exhibited symptoms, but none is over twenty-four years old. Two of the cases prove that the statement of Huntington is incorrect, that the disease "never begins in youth." Cases of Peretti's confirm this, while some of Huber's show that it may commence after forty years of age.

The disease begins as does chorea minor, but does not end in recovery. The chorea is not made worse by intended movements. Failure of mental power develops later in nearly all cases. If one generation escapes, the disease ceases to occur. The choreic movements are extreme; affect nearly the whole voluntary muscular system; usually cease during sleep. In advanced cases there is some loss of muscular power, and occasionally of sensibility to pain.

Hoffmann then reports another case which developed chorea at forty, and also epilepsy at fifty, and whose mother and three sisters had been epileptics. He believes that it is undoubtedly an instance of chronic chorea, and that the absence of psychic disturbance proves nothing to the contrary, since a case of Ewald's exhibited the same peculiarity. As regards the "heredity," it would seem that epilepsy had taken the place of chorea in the predecessors. This epilepsy differed from the usual hereditary form in that it did not develop in youth, but not until between twenty-six and fifty years of age. It is interesting to note that in this case chorea followed epilepsy, while in one of the others, as already stated, the order was reversed. The author then discusses the association of chorea with other nervous diseases. Since this fourth case proves an exception to the rule of inheritance, he prefers the title "chorea chronica progressiva."

He devotes some attention to the possible anatomical seat of the cause of the disease, but throws no light on the subject.

SIGNIFICANCE AND VALUE OF THE TENDON REFLEX.

BUZZARD (*Lancet*, 1888, i. 159) says that the tendon reflex is often erroneously reported absent in health, but that if carefully tested by Jendrassik's—

i. e., the "arm tension"—method and not found, we have to do with something pathological.

The absence of knee-jerk signifies organic disease of either muscle, nerve, or spinal cord at its lumbar enlargement; though as a temporary condition it may follow an epileptic fit, an apoplectic seizure, or certain narcotic poisons. Absent knee-jerk due to disease of the muscle is seen in pseudo-hypertrophic paralysis, occasionally in Thomsen's disease, and in cases of the hereditary form of progressive muscular atrophy. Loss of knee-jerk due to disease of the nerve—peripheral neuritis—is seen in diphtheritic paralysis, where it often long persists, in alcoholic neuritis, in diabetes—due often to a neuritis, and in lead-poisoning. In spinal meningitis with involvement and compression of the anterior or posterior nerves at the point of exit; and in rheumatic inflammation of the sheaths of the nerves it is often lost.

Among acute diseases of the cord producing loss of knee-jerk when the lumbar enlargement is involved are transverse myelitis, anterior poliomyelitis; compression myelitis, and softening of the cord; and among chronic disorders are tabes dorsalis, insular sclerosis, tumor of the cord, and chronic atrophy from poliomyelitis. Anterior poliomyelitis shares with disease of the anterior crural nerve the loss of the reflex, but is distinguished from it by the wasting and the absence of sensory disturbance. The return of the knee-jerk renders the prognosis favorable, though it may continue absent after other symptoms have disappeared. Tabes is distinguished from either of these two affections by the fact that though the knee-jerk is wanting the muscles contract perfectly when struck, this being a proof that the cells of the anterior horns are not diseased. The severe pains, also, are rather in the region of the sciatic than in that of the anterior crural nerve. The return of the patellar reflex in cases diagnosed as tabes renders it almost certain that the diagnosis was incorrect; while the very rare persistence from the outset is probably due to a not complete degeneration of the posterior columns. Transverse myelitis from Pott's disease produces loss of knee-jerk when the lesion is situated at the lumbar enlargement; otherwise the reflex is enormously increased. Loss of knee-jerk with the presence of ankle clonus in the same limb renders the existence of insular sclerosis very probable. In spinal progressive muscular atrophy the knee-jerk is absent if the *quadratus* is greatly atrophied; otherwise it is frequently retained or even exaggerated, this being a certain proof in any given case that the disease was primarily spinal and not myopathic. An exaggeration indicates that some sclerosis of the lateral tracts has accompanied the disease of the large ganglion cells.

Increased knee-jerk and ankle-clonus are seen whenever anything removes the control of the higher centres. Thus, epilepsy, which temporarily exhausts the nerve cells of the cortex, produces an ankle-clonus which lasts a few moments. Descending lateral sclerosis, secondary to cortical lesions, produces ankle-clonus in the paralyzed limb. So, also, spastic paraplegia, with its greatly increased knee-jerk, is due to disease of the antero-lateral columns, with which is usually combined some affection of the anterior gray matter, producing atrophy. Carefully to be distinguished from these last affections, as having a much more favorable prognosis, are localized myelitis with the symptoms of lateral sclerosis, compression myelitis from Pott's disease, and the excessive knee-jerk and ankle-clonus which appear a few days after an intra-

cranial lesion. The existence of increased wrist-jerk in these conditions is, however, a much more unfavorable sign. In neurasthenic states, including functional paraplegias, the knee-jerk is often increased and ankle-clonus present. The association of exaggerated patellar reflex with absent plantar reflex in paraplegia, without sensory disturbance, renders a functional affection probable. This is particularly the case if the wrist-jerk be as much increased as the knee-jerk, while no loss of power is complained of in the arms. Inequality of the reflexes on the two sides, with diminishing power, is sometimes an unfavorable symptom. The author believes there is no such thing as a neurasthenic or hysterical loss of knee-jerk.

CLINICAL AND ANATOMICAL NOTES ON SYRINGOMYELIA.

In connection with the elaborate article by STARR in the May number of the *AMERICAN JOURNAL OF THE MEDICAL SCIENCES*, the paper by SCHULTZE (*Zeitsch. f. klin. Med.*, B. xxx. H. 6, 523) is of considerable interest. He publishes the notes of seven cases; and says that, according to his experience, the disease is not more uncommon than amyotrophic lateral sclerosis; and many cases of the so-called "typical progressive muscular atrophy" are probably instances of syringomyelia.

In a certain number of cases the diagnosis can be as positively made as in examples of multiple sclerosis; while in others there are no characteristic symptoms. Since the formation of cavities usually takes place in the cervical and dorsal cord—he reports a case where the lumbar cord was affected—and destroys the posterior, and, in most cases, the anterior gray matter, there is a probability that there will be a peculiar complex of symptoms. This consists in a progressive muscular atrophy of the upper extremities and shoulders, combined with peculiar disturbances of sensibility, affection of the pain and temperature senses, while the muscular and cutaneous sensibility are not at all or but little affected. Trophic disturbances also arise in many cases. As disease of the posterior and lateral columns, and of the medulla, develops, other symptoms are associated with these.

As regards the differential diagnosis, the muscular atrophy is too limited, and progresses too slowly, to be due to a neuritis of any sort; some kinds of neuritis being further characterized by their localization or diffusion, and some by the other attendant symptoms. The peculiar sensory affections are, in some cases, however, very much alike. Tabes of an abnormal type is distinguished by the long-continued prodromal pain without atrophy, and by the early loss of pupillary and patellar reflexes. Multiple sclerosis and chronic cervical myelitis can hardly be mistaken for syringomyelia. Charcot's hypertrophic cervical pachymeningitis, and widespread and cervical extra-medullary tumors, have more points of resemblance to it, but are distinguished by the initial pain and stiffness of the neck, and the later contractures in the atrophied arm muscles. The symptoms of intra-medullary tumors cannot be distinguished from those of syringomyelia. Amyotrophic lateral sclerosis may resemble it greatly, but the paræsthesias of temperature sense, and the burning pains seem to be wanting, though tearing pains may occur. All cases of slowly advancing muscular atrophy in which burning pains are complained of, should arouse the suspicion of syringomyelia, and should be studied with

reference to the pain and temperature sense. There is a very interesting relation between syringomyelia and unilateral lesion of the medulla; both exhibiting the peculiar disorder of sensation; only probably bilateral in the first disease. Great difficulties of diagnosis arise when large gliomas or sclerosis of different spinal tracts are combined with the affection under discussion; since evidences of complete compression, spastic symptoms, or the signs of involvement of the nuclei in the medulla may be superadded. Trophic affections are of great practical importance, and may be exceedingly severe, such as spontaneous fractures, panarus, etc.

As regards the anatomy of the affection, the author believes that the cavities may arise from supplementary canals abnormally situated, or from the central canal abnormally wide. It can also not be denied that they may develop from the neuroglia, especially when they are not lined by epithelium. He details a case indicating the falsity of the view of Langhaus, that the cavities develop from diverticula which are the result of increased pressure produced by a tumor in the cerebellum. The examination of the muscles in one of the cases showed with certainty only the changes which follow anterior poliomyelitis.

AN ATYPICAL CASE OF THOMSEN'S DISEASE (MYOTONIA CONGENITA).

C. L. DANA (*Medical Record*, April 31, 1888) describes an atypical case of this rare disorder occurring in a male, aged thirty-five. The family history of the patient was good with the exception of some spinal disease in the sister; and the personal history was also good. The disease commenced at the age of twenty with stiffness of the hands; later of the legs and of the muscles of mastication and deglutition. Recently the patient finds he tires easily; especially in the arms. Examination shows good muscular development, with apparent pseudo-hypertrophy of the biceps and calf muscles. Tonic contractions of the muscles lasting a few seconds occur after action, and require some effort to overcome them. They are seen in the biceps, muscles of the calves, and pillars of the fauces. If, however, the hand is tightly closed for several minutes, the spasm relaxes, and it can be opened readily.

On striking the muscles of the arms, shoulders, and lower extremities, a welt of muscular contraction appears and lasts for five or ten seconds. Electric sensibility is diminished; the faradic contractility normal or increased; the galvanic contractility increased; there is no reaction of degeneration. The knee-jerk is lessened; there is a slight bilateral ptosis; slight muscular anæsthesia; aching pains in the legs; apparent vasomotor weakness; an increased secretion of saliva. No other change of importance is recorded. Microscopic examination of a piece of excised muscle revealed some of the changes characteristic of Thomsen's disease; viz., increase of nuclei and fissuring of the muscle fibre.

EMPHYEMA AFTER FIBRINOUS PNEUMONIA.

Though admitting that purulent effusions after croupous pneumonia occur but seldom, PENZOLDT (*Münch. med. Wochens.*, 1888, 227) has been led to believe that this accident is commoner than ordinarily supposed to be, by the fact that he has recently seen seven cases. The course of the pneumonia

in all the cases was severe, and in some of them the failure of the temperature to fall to normal at the time the local symptoms indicated the crisis, showed that there was some unusual influence operating. But this sign often fails, and no other symptom indicates the presence of pus. It is, therefore, very important in all cases where dulness and bronchial respiration persist, with some evidences of fever and diminution of strength, that an exploratory puncture be made at once. Such a procedure cannot possibly do harm, and may be the means of saving the life of the patient. The author says that by the neglect of this means of diagnosis he has, in past years, failed to discover the existence of an empyema after pneumonia, or found it too late in a few cases. Sometimes the puncture fails to reveal pus which is present. This may be due to adhesions of the pleura in places. The syringe, too, may be at fault; the needle being too short or too fine, or the suction not being good. On the other hand, if any carbolic acid solution be allowed to remain in the needle or the syringe, it will coagulate a serous exudate, and create the false impression that the fluid is purulent. It is, therefore, well to wash the syringe with pure water after its disinfection. After pus has been discovered, resection of the rib is probably the surest means of treatment, if the amount of fluid is considerable.

As regards the cause of the empyema, it seems most probable to the author that in these cases there are associated with the active infectious agents producing pneumonia those causing suppuration; and that the latter penetrate the pulmonary pleura in some way.

CEREBRAL SYMPTOMS IN THE PNEUMONIA OF CHILDREN.

HOLT (*Medical Record*, April 7, 1888) has analyzed 173 cases of pneumonia in children with reference to the occurrence of cerebral symptoms. All but 13 were under five years of age, 34 cases (20 per cent.) presented these symptoms, namely, convulsions in 14, delirium in 12, other cerebral symptoms in 8. The convulsions of pneumonia did not differ from those of other acute diseases, and in one-half the cases they occurred with the invasion; in the others toward the close. Delirium was rare in the first two or three days; most marked at the height of the disease (fourth to seventh day). In the mild forms it was an incoherent rambling during sleep; in the severe forms it was sometimes low, muttering; more commonly wild and excited, and accompanied by all the symptoms of cerebro-spinal meningitis. Other patients had semi-stupor alternating with great irritability, simulating tubercular meningitis very closely.

The diagnosis of cases of cerebral pneumonia from meningitis is the question of the most importance. The chest should be examined thoroughly and repeatedly, since positive physical signs sometimes appear late. Cough is usually present, but its absence in the first two or three days is of little diagnostic value. Activity of the *alæ nasi* is rarely absent in pneumonia, but may be seen in other conditions. Alteration of the pulse-respiration ratio, with acceleration of the respiration, is the most important symptom. Irregular respiration is almost never seen in pneumonia, the *slow*, irregular pulse of meningitis does not occur, and localized paralyses are not met with. The knee-jerk is usually lost in meningitis, while the author does not know that its absence has ever been recorded in pneumonia. The course of the case

nearly always clears up the diagnosis, since the cerebral symptoms of pneumonia are not so severe or so continuous as those of meningitis. The diagnosis is impossible between broncho-pneumonia with cerebral symptoms and pulmonary tuberculosis with a few tubercles in the brain.

As regards the etiology of the cerebral symptoms, the great predisposing factor is the susceptibility of the nervous system present in early life. All but one of the fourteen cases of convulsions occurred under two years of age. Delirium was more common between four and eight years of age. High temperature was a common cause of the cerebral symptoms; especially of delirium and stupor. The constitution of the patient appears to have had but little influence, except that convulsions were more common in delicate children. The form of the disease is a factor of importance; the frequency of the cerebral symptoms appearing to be proportionate to the abruptness of the onset. The author has studied the influence of the location of the disease with some care and is convinced that the supposed special disposition to cerebral symptoms in apex pneumonia does not exist. It is the extent rather than the location which is the factor in producing nervous symptoms.

As regards prognosis, we may conclude that with the exception of late convulsions, the evidence of cerebral affection does not much increase the danger of the disease. For treatment the author recommends the cold pack in hyperpyrexia, and antipyrin to quiet delirium, restlessness, and cough.

RESEARCHES ON THE ETIOLOGY OF INFECTIOUS ENDOCARDITIS.

VINAY (Lyon *Médical*, March 25, 1888) relates a case of infectious endocarditis developing suddenly in an elderly man with arterio-sclerosis, and proving fatal in two months. The autopsy showed no lesion of the body to which the verrucose change of the endocardium was secondary. Culture and inoculation experiments, made after the death of the patient, revealed the presence of the *staphylococcus pyogenes aureus* in the vegetations. The author then enters into an extended review of the researches which have been carried on during the last three years on the nature of the pathogenic agent in infectious endocarditis, and concerning the possibility of reproducing the malady in animals. After quoting largely from the literature of the subject, he concludes that the disease is not caused by a single agent, but owes its origin to one or more of several forms of microorganisms, which have, however, a common characteristic; viz., the power of producing suppuration. This variation in the cause does not in the least destroy the unity of the septic affection, whether appearing as a primary disorder, or as secondary to one already existing, since the cause is sufficiently uniform, the symptoms very well marked, and the clinical significance very grave.

THE PATHOLOGICAL SIGNIFICANCE OF THE AUSCULTATORY SOUNDS IN THE CRURAL ARTERIES.

HOCHHAUS (*Virchow's Archiv*, Bd. cxi. H. 3, 497) reviews quite carefully what has already been written on the subject, details the results of his own studies on 506 cases of various diseases, and draws the following conclusions: I. Pressure murmurs and pressure tones may be detected in the crural artery both in normal and pathological conditions, and only in atheroma can

they usually not be produced. II. A spontaneous tone (*i. e.*, heard without any compression of the artery) is heard: 1, always in aortic insufficiency, on account of the increased expansion of the artery produced by the action of the hypertrophied left ventricle; 2, always in uncompensated mitral insufficiency, anæmia, and febrile affections on account of the great difference between the tensions of the systole and diastole of the artery. III. Traube's double tone is, according to the author's experience, rare in aortic insufficiency; a diastolic double tone is more common, due to an interrupted contraction of the ventricle. ("Diastolic" applies to the artery, meaning its period of dilatation.) IV. A diastolic and systolic double murmur is heard in all well marked cases of aortic insufficiency, and often in aortic stenosis and insufficiency. It is of diagnostic import for the latter affection, although it occasionally occurs in typhoid, anæmia, and atheroma. V. With the exception of aortic insufficiency, the results of auscultation of the crural artery are without diagnostic or prognostic value in any of the diseases which the author studied, and probably this applies to all diseases.

ON THE CONDITION OF THE GASTRIC SECRETION IN FEBRILE DISEASES.

Realizing the importance of a proper diet in fever, and that this depends on our knowledge of the capability of the stomach to digest in febrile affections, Wolfram made some studies on the nature of the gastric secretion in this condition, and the results of these experiments GLUZINSKI now reports (*Deutsches Arch. f. klin. Med.*, Bd. xlii. H. 5, 481). After reviewing some of the experiments which have been published by others, and giving tabular statements of some of Wolfram's cases, which numbered fifteen in all, he concludes that as far, at least, as any deductions can be made from so small a number of cases, they should be divided into two groups. In the first, the acute infectious diseases, the gastric secretion contained no HCl, except at the terminal stage of typhoid fever. It also possessed no power of digestion, either within or outside of the organism; though on the addition of acid it artificially digested quite well, thus proving that the fault did not lie in the absence of pepsin. With the cessation of fever, or a little later, the digestive power returned.

In the second group, the chronic febrile diseases, the digestive strength remained normal even during the course of the disease. It would seem, therefore, probable that it is not the elevation of temperature so much as the nature of the infection which influences the nature of the gastric secretion. Even more true is it that digestive power is normal in the non-infectious diseases, and wanting in those of an infectious nature. It is evident, therefore, that the treatment should consist in the administration of HCl; and that forced feeding may be employed in chronic cases, with the hope that digestion will take place.

ON THE DIAGNOSIS AND THERAPY OF ROUND ULCER OF THE STOMACH.

GERHARDT (*Münchener med. Wochensch.*, 1888, 239) says: Injuries of the gastric mucous membrane heal rapidly. Round ulcer is a chronic ulcer, whose chief characteristic is its persistency, and there must, therefore, be some other cause for this persistency besides the loss of substance. This is usually

sought in an excessive gastric secretion, or in the action of injurious food or medicines, and where these are not the agents certain microorganisms are perhaps at fault. It is a common disease, and cicatrices are found in one-tenth of all autopsies made. Cicatrices are three times as common as open ulcers; recovery, therefore, occurs with relative frequency. Hematemesis is absent in the majority of cases, besides being a symptom of other affections also. The seat of the ulcer is in twenty per cent. of the cases in the space between the pylorus, the lesser curvature, and the posterior wall. It is not correct to say that the absence of tumor is one of the most important negative symptoms. Tumors are frequent, due to: 1, old callous ulcers, especially when situated in the anterior walls; 2, excessive thickening of the pyloric muscle, a very common cause; 3, masses of exudate lying on the gastric wall, rare; 4, the projection of other organs through a perforated ulcer. Hyperacidity is usually present, but there are cases in which no HCl is to be found; and the acid is sometimes seen in carcinoma. The duration may be from twenty-five to thirty years, and intermissions in the symptoms are frequently mistaken for recovery and relapse. Pain is rarely absent, and has the greatest diagnostic value when *not* situated at the xiphoid cartilage, and when dependent on the nature of the food, the time of eating, and the position of the body. Dilatation of the stomach indicates that the ulcer is at the pylorus; contraction, that it is at the cardia; intermittent rigors, that the spleen is involved; tenderness on pressure and absence of hemorrhage, that the anterior wall is affected; pain in the back and hemorrhage, that it is the posterior wall. A patient who abstains from food on account of pain, and thereby becomes emaciated, is probably suffering from an ulcer, and not from a carcinoma. The periodical weighing of the patient is very important for purposes of diagnosis.

LIPOGENIC DIABETES.

The occurrence of transient glycosuria in fat persons is a matter of common observation among those who systematically examine all specimens of urine for the presence of glucose, and in such individuals the symptom is not usually looked upon as one of grave significance. But a more careful examination of statistics seems to show that this lipogenic glycosuria is not infrequently followed by a true diabetes. WISCH (*Berliner klinische Wochenschrift*, 1887, No. 46) has made a careful investigation of this question with interesting results. In more than one-half of the cases of marked obesity of hereditary origin which came under his notice, diabetes developed after varying periods of intermittent glycosuria. The striking association of lipomatosis with diabetes is illustrated by three genealogies, each one going back three generations. The frequent association, too, of gout with lipogenic diabetes—familiar to all who see much of either disease—is dwelt upon.

Regarding the pathogenic relation of diabetes to obesity, Wisch looks upon the diminished power of the fat-infiltrated muscle cells to convert sugar into glycogen as the cause of the diabetes. Stated broadly, his view is that there exists a congenital abnormality of the metabolic function of the cells which prevents their disposing, by combustion, of the fat within them, and that the resulting accumulation of fat leads secondarily to an inability to dispose properly of the glucose.

In the importance which he ascribes to the muscles in the causation of this form of diabetes (but little weight is given to the part the fatty liver may play in it), Wisch is in accord, in many particulars, with numerous other observers, such as Senator, Zimmer, Ebstein, Seegen, etc.

INFLUENCES OF DIET ON ALBUMINURIA.

The clinical experience of the benefits to be derived from the use of a milk diet in albuminuria has recently been experimentally confirmed by OESTREICH (Dissertation, also *Centralblatt f. d. med. Wissenschaft*, 1888, No. 6). In a patient with albuminuria, œdema of the feet and ascites, living on a mixed diet, there was eliminated by the urine, in the course of twenty-eight days, between 0.1 and 0.9 per cent. of albumin, or a daily quantity of from 20 to 120 grains, the determinations being made with Esbach's albuminometer—which, he it observed, gives but approximately correct results. During the next seven days the patient was put upon a meat diet, consisting of meat, two eggs, bouillon, bread and coffee; when he eliminated but 0.17 to 0.2 per cent. of albumin, or a daily quantity varying from 25 to 75 grains. Then for eighteen days a milk diet, composed of one quart of milk, soup, bread, bouillon, potatoes, and green vegetables was used, with the result that the urine contained from 0.1 to 0.25 per cent. of albumin, or a daily quantity of from 18 to 80 grains.

It will readily be seen, therefore, that a meat or milk diet—and of the two, especially the milk diet—has more effect in diminishing the daily quantity of albumin lost than has a mixed diet.

CYCLIC ALBUMINURIA.

Cases of albuminuria occur, writes PAVY (*Lancet*, April 14, 1888), without having at their foundation anything of a grave nature. The albumen in the urine, not infrequently accompanied by crystals of oxalate of lime, is the only phenomenon which can be recognized, as far as symptoms and physical signs go. Mental states, exercise, immersion of the body in cold water, and the ingestion of food have been named as possible causes of this condition. In a considerable number of cases, too, intermittent or continuous albuminuria is present, without any cause whatever being discoverable, and without the development of any signs of Bright's disease. There is a very sharply defined form, viz., "cyclic albuminuria," which is characterized by the persistent occurrence of albumen in the urine at a fixed period in the day, while it is as uniformly absent at another time. On rising in the morning there is no albumen in the urine; in an hour or two it appears and increases in quantity for a while, then diminishes and disappears before the day is over. The ingestion of food or the employment of cold water bathing has no influence upon it; but if the recumbent position is maintained in bed during the day, the albuminuria does not appear. It is the upright position which is the factor in determining the escape of albumen in these cases.

Cyclic albuminuria must be carefully distinguished from the condition seen sometimes during recovery from acute nephritis, where rising from bed causes a reappearance of the albumen in the urine. The previous history of

the case will aid us in distinguishing between them. The functional disorder appears to have no tendency to become organic; its treatment with drugs is unsatisfactory, and we must attend simply to the hygienic condition of the patient. A correct recognition of the disorder is the most important matter connected with it, and as aid in this respect the author would call attention to a condition of the urine, to which, however, he would not attribute too great diagnostic value. In structural renal disease, namely, it is rare to find any proteid substance in the urine which is precipitated by organic acids. In cyclic albuminuria, on the other hand, it is the rule that such a precipitate be produced. Two proteid substances are present in such cases, one of which is precipitated by the citric acid used in the first stage of the ferrocyanide test, and the other, the serum-albumen, on the addition of the potassium salt.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

SURGEON TO THE PHILADELPHIA AND GERMAN HOSPITALS; CLINICAL PROFESSOR OF GENITO-URINARY SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

CEREBRAL SURGERY.

DR. DAVID FERRIER and MR. VICTOR HORSLEY report (*The British Medical Journal*, March 10 and 24, 1888) a case of cerebral abscess in connection with otitis media successfully diagnosed and evacuated. The patient was a man, aged forty-seven, who had been ill for a month, his troubles beginning with an offensive discharge from the left ear, gradually followed by drowsiness, aphasia, delirium, slight facial paralysis, and optic neuritis, leaving no doubt that the patient was suffering from a cerebral abscess. There was a spot tender to pressure and percussion situated two inches above and just anterior to a line drawn upward from the external auditory meatus. The comparatively rapid onset of symptoms indicative of cerebral mischief in a man previously in good health, coincidently with signs of inflammation and purulent discharge from the left ear, were in favor of abscess rather than tumor. There had been no vomiting, convulsions, or febrile disturbance, or other indications of meningeal inflammation. The fact that there had been no rise of temperature did not exclude the idea of encephalitis resulting in abscess, for many cases of cerebral abscess appear to run their course without causing febrile disturbances, the temperature being in some rather subnormal than the reverse. The position of the abscess, verified by the operation, was determined both from the symptomatology and the position of the pain experienced on percussion. The relative weakness of the right angle of the mouth, the ataxic speech, and slight degree of word-deafness, indicated that the disease was situated in close proximity to the speech and auditory centres of the left hemisphere, but not actually destroying them; and the conditions

of such a lesion would be supplied by an abscess situated in the anterior third of the temporo-sphenoidal lobe and abutting or pressing on the fissure of Sylvius. This localization from symptomatology was confirmed by the discovery of a spot, tender on pressure and percussion, coinciding in position with that part of the superior, or superior and middle, temporal convolution which lies immediately posterior to the ascending limb of the fissure of Sylvius, and below the inferior extremity of the ascending frontal convolution. The position of the tender spot is not by itself a safe guide to the localization of abscess or other cerebral disease, for the pain may be referred to a region at a considerable distance from the disease. Thus, Mr. Hulke (*British Medical Journal*, July 3, 1886) records a case in which there was a tender spot above the ear, whereas the abscess was in the cerebellum; and in a second, pain was felt acutely in the occiput, whilst the abscess was in the temporo-sphenoidal lobe. The pain, however, was useful confirmatory evidence.

An operation was decided upon, and performed by Mr. Horsley on the following day, five drachms of pus were evacuated, a silver drainage tube was left in place for a few days, and the patient made a rapid and almost uninterrupted recovery.

MR. THORNLEY STOKER reports (*British Medical Journal*, April 7, 1888) an interesting case of subcranial hemorrhage treated by secondary trephining. A man, aged fifty, was brought to the hospital with left brachial motor-monoplegia, very slight left-sided facial paralysis, and in a condition of stupor. There was a bruise of the scalp. No history was obtainable. He became profoundly hemiplegic and comatose, and the following diagnosis was made before the operation, which was performed nine days after his admission.

1. Hemorrhage over the right motor area, between the bone and dura mater, probably due to laceration of the middle meningeal artery or one of its branches, most likely associated with fracture, and producing the partial left paralysis which at first existed. 2. Subsequent increase of the hemiplegia, either due to renewed hemorrhage or to that sudden yielding of brain function which is repeatedly seen in both hemorrhages and serous effusions which have existed for some time, even though no additional mechanical pressure is called into play. The existence of the scalp injury over the upper and back part of the motor area was of less value in indicating the seat of pressure than the opposite paralyses, which pointed clearly to the engagement of the greater portion of the right motor area, including the extensive surface occupied by the cortical centres for the various parts of the upper extremity, the face, and tongue, and lower extremity, the interference with them being in the sequence in which they are written.

As to the assumption that the pressure was cortical, and not apoplectic, it was founded on the belief in the absence of any sensory paralysis, and the teaching on that point so well expressed by Ferrier, who says that "strictly cortical lesions of the motor area do not cause anæsthesia in any form, and it may be laid down, as a rule to which there are no exceptions, that if anæsthesia is found along with motor paralysis the lesion is not limited to the motor zone, but also implicates, organically or functionally, the sensory tracts of the internal capsule, or the centres to which they are distributed." The cortical nature of the pressure was further supported by the existence in the

early stage of the case of a brachial monoplegia, as it is well established that monoplegia is a condition due to interference with the cortex and not usually found in more deeply seated lesions.

Mr. Stoker accordingly operated by trephining over the fissure of Rolando, found and removed a large clot, and the patient recovered uninterruptedly.

He was able to arrive at a conclusion justifying a useful operation by two circumstances; first, that he could, independently of any knowledge of a fracture enabling him to localize the hemorrhage, put his finger over the motor area and say with sufficient accuracy, "There is pressure here over the cortical centres for the upper extremity; it extended downward and forward to those of the face; it afterward reached upward to those for the lower extremity." The sequence is anatomically perfect. First, a brachial monoplegia; then as the blood or pressure effect extends, a facio-lingual; and finally, a crural paralysis. Independently of these points, the case, as one in which no defined bone lesion served to localize the hemorrhage, belongs to a class sufficiently rare to deserve notice.

SIR WILLIAM STOKES (*Ibid.*) relates two cases in which he trephined for traumatic subdural abscess, and after reviewing the details of the chief recorded cases, comes to the following conclusions:

1. That after the primary symptoms of cerebral traumatism had subsided, there was frequently a latent period of varying length, during which there were no distinct brain symptoms connected with abscess formation whatever.
2. That their appearance, as a rule, was sudden, and, if uninterfered with, they ran a rapidly fatal course.
3. That the occurrence of pus production resulting from cerebral traumatism, was not incompatible with a perfectly afebrile condition.
4. That this latter fact would probably aid in differentiating traumatic cerebral abscess from meningeal or encephalic inflammation.
5. That both as regards color and consistence, there was great variety in the contents of cerebral abscess cavities, and that, as shown in Wilm's case, published by Rose, of Berlin, they might be transparent.
6. That antisepticism has largely diminished the risks of the operation of trephining.
7. That having regard to the great mortality of cases of cerebral abscess when uninterfered with, namely, from ninety to one hundred per cent., the operation was indicated even when the patient was *in extremis*.
8. That in cases where the trephine opening did not correspond to the situation of the abscess, exploratory puncture and aspiration might be employed.
9. That by the adoption of this measure the necessity for multiple trephine openings could be largely obviated.
10. That the employment of a blunt-pointed aspirating needle, as suggested by Rentz, was probably the safest mode of exploration and excavation.
11. That drainage was desirable in the after-treatment of such cases.
12. That both during and subsequent to operative interference in these cases a rigid antisepticism was imperatively required.

MR C. B. BALL also reports (*Ibid.*) a case of traumatic aphasia successfully treated by trephining and removal of a blood clot from the interior of the cerebrum.

MR. ARTHUR E. BARKER, in the *British Medical Journal* of April 14, 1888, reports a case of cerebral suppuration due to otitis media, diagnosed and successfully treated by trephining and drainage. The patient, a man, æt. thirty-three, had had a purulent discharge from the right ear, pain on that side of the head, a temperature of 99° to 100.5°, vomiting, epileptiform convulsions, transient coma, then partial left hemiplegia, etc. The mastoid was trephined without results, excepting reduction of temperature. These facts seemed to point to a localized meningitis, and as the paresis had started in the left side of the face, and had spread to the left arm, etc., the indications were that the lesion existed in and about the junction of the middle and lower third of the right ascending frontal and parietal convolutions. Mr. Barker thought that the six other serious conditions which he finds to arise from otitis media might be excluded, because

1. Mastoid cell abscess had already been excluded by the operation of trephining the mastoid, and the subsequent persistence and aggravation of the symptoms.

2. Plastic phlebitis of the lateral sinus, with thrombosis, appeared also to be negatived by the course of the temperature, the absence of rigor, and of any swelling in the course of the deep jugular vein and side of the face. The temperature, raised before the opening of the cells and thorough cleansing of the tympanic ramifications, had shown a general inclination to fall slightly but steadily.

3. Pyæmia was negatived in much the same way, also, by the absence of secondary deposits, as well as by the general aspect of the patient.

4. Subdural abscess, besides being less likely to form in an adult, and especially in one who had no evidence of definite caries in the ear, would probably have led by this time to œdema of the overlying skin, which was conspicuously absent, and probably have been ushered in by a rigor, and have kept the temperature steadily higher than was the case.

5. Cerebellar abscess, besides its relative rarity, seemed improbable from the history of the case—that is, the character of the ear mischief and the absence of caries of the tympanum; and although it was suggested that right-sided fits at the commencement of the intracranial complications might be explained by cerebellar disease, the gradual onset of facial and arm paralysis, with twitchings of the wrist, appeared to him to give a clear indication of the situation and the nature of the lesion, as near the motor areas of the cerebrum.

6. Abscess in the temporo-sphenoidal lobe again seemed alone to be insufficient to account for all the symptoms present.

Adhering to the diagnosis of inflammatory effusion in the situation given above, Mr. Barker trephined over the fissure of Rolando—one and a half inches above the Sylvian fissure—finding and evacuating about an ounce of pus. The patient recovered almost completely.

MR. F. A. HEATH reports a case (*The Lancet*, April 7, 1888) of cerebral tumor, in which the diagnosis was based on the following circumstances: On admission, the patient had a fairly healthy aspect, but did not seem to be very intelligent. Atrophy of the optic disk on the right side and commencing atrophy on the left were found on examining the eyes ophthalmoscopically. He could not smell camphor with his right nostril, but could with his left. His face appeared to be somewhat drawn to the right side, and the distortion

was still more apparent when the patient laughed or endeavored to show his teeth. The left arm was distinctly weaker than the right one. He could send the dial of the dynamometer through only fifteen divisions on the left side, as compared with thirty on the right. The left leg was also much weaker than the right, he himself having often noticed that he limped with it, and that it got tired before the right. There was no anæsthesia anywhere. The calf of the left leg measured eleven inches and a quarter, and that of the right eleven inches and a half. These symptoms might be accounted for by disease situated on the right side of the brain. Since the head, arm, and shoulder on the left side were convulsed during a fit, it is inferred that the upper part of the ascending frontal convolution on the right side of the brain was implicated in some way. Then, again, since the latter attacks always began with unconsciousness, it was concluded that the mischief was situated somewhere anterior to the ascending frontal convolution, and pressed back on the motor nerves. Loss of smell on the right side likewise favored this conclusion. This opinion was further confirmed by the fact that there was a spot tender on percussion, about an inch and a half behind the external angular process of the frontal bone, and two inches up from the zygoma. Mr. Heath trephined on the tender spot, and exposed a tumor so deeply seated and firmly fixed to the base of the anterior fossa that further operation was deemed inadvisable. The patient at the date of report, eighteen months later, was somewhat worse.

SUPPURATION AND SEPTIC DISEASES.

The concluding lecture of the admirable series on the above subject, delivered by MR. W. WATSON CHEYNE, at the Royal College of Surgeons, is published in the *British Medical Journal* of March 10th. His views may be summarized as follows; With regard to the factors involved in the production of suppuration and of septic diseases, while there can be no doubt that the pyogenic organisms are essential, yet in many cases much depends on other conditions, of which the chief, probably, are the dose or number of the organisms and their concentration, general and local depression of vitality, and the seat of inoculation. If the organisms enter in large numbers, sufficient to overcome the resistance of the body, they alone may cause the disease; frequently, however, they enter in smaller numbers, and then other conditions become necessary to enable them to act. Of these conditions the chief are depressed vitality, either local or general, combined with the possibility of their remaining in the weakened tissue. This depression of vitality may be brought about by conditions acting on the body generally, such as acute fevers; or by local conditions, more especially those which induce the early stage of inflammation, such as cold, injury, chemical substances, the products of the bacteria themselves, or the products of other kinds of bacteria which may happen to be growing along with them. Or, again, the favorable condition may be some peculiarity in the soil, as shown by variations in the character of the disease in accordance with the seat of inoculation or the anatomical arrangement of the part. The only factor, however, with which we can reckon with certainty, is the cocci themselves. These organisms are fairly widely distributed outside the body. In the air they have been found on only a very few occasions, and in very small numbers.

Staphylococcus pyogenes aureus has been found on one or two occasions in the air of surgical wards, as has also the streptococcus of erysipelas. Experiments have been made as to the presence of the latter organism in the air of wards in which erysipelas patients were present, and they have in one or two instances been found in small numbers; as a rule, however, they are apparently present only when the patients are in a state of convalescence, and when desquamation of the skin is occurring, and it seems highly probable, from the observations that have been made, that they are carried in the cutaneous scales thrown off during desquamation. Erysipelas cocci have been found in a post-mortem room where cases of erysipelatos infection had occurred, and in this case the infection was supposed to have come from the floor. The pyogenic organisms are very rarely present in putrefying liquids, but they have been found on decomposing beef, and in the water employed in kitchens for rinsing dishes; they are also sometimes present in the superficial layers of the soil. One of their most common seats, outside the body, is the surface of the skin, and they especially occur in parts where the skin is moist, for example, in the axillæ, between the nates, between the toes, etc.; they are also frequently present in connection with the hair, and in the dirt under the nails. Fränkel has found them in the secretions of the healthy pharynx, and Bockhardt found "aureus" and "albus" in large numbers in the nasal mucus of a patient suffering from chronic catarrh of the nose, and at the same time affected with sycosis of the upper lip.

As regards the entrance of these organisms into wounds, they may get in during an operation from the air, from the instruments and hands of the operator and his assistants, from surrounding objects, or from the skin in the neighborhood of the wound. We are now, however, sufficiently acquainted with the various precautions necessary to prevent these organisms from entering, and it is a comparatively easy matter to leave a wound made through a previously unbroken skin without any pyogenic organism in it.

In the after-treatment of wounds there are two situations where the battle with these parasites may take place; it may either occur outside the wound, the organisms never being allowed to enter it, or it may take place inside the wound after their entrance has been permitted. Antiseptic dressings are not, in their essence, applications to wounds; they are applications to the discharge which has come from the wound and the skin surrounding it.

As to the mode of entrance of these pyogenic organisms after the operation, they may get in while the dressing is being changed, either by falling from the air, though this must be of rare occurrence, seeing that they are so rarely present in the air, or by contamination with the surgeon's hands, instruments, etc., but this is also very easily avoided, and should not occur. Usually they are admitted either through the dressing or beneath it during the interval between the change of dressings. They most commonly spread by growing in the discharge which is lying between the dressing and the skin, and in the superficial layers of the epidermis, more especially in the latter; for as the result of the irritation of the antiseptic employed, there is hypertrophy of the epithelium, and thus a large number of dead epithelial cells are present, which, being soaked with the discharge, form a good nidus for the development of bacteria, unless, indeed, enough of the antiseptic has been communicated to the discharge and the epithelium from the dressing, to render it an

unsuitable soil for the growth of organisms. If this is not the case, the organisms will go on growing in the substance of this dead epithelium, protected by the superficial layers from the action of the dressing, and thus they may, if a dressing is left on for too long a time, ultimately reach the wound. This is not a mere theoretical speculation, for Mr. Cheyne has been able to trace the development of the organisms beneath the dressings, from their margin toward the wound, the extent to which they spread varying with the length of time that the dressing has been applied.

If these views as to the mode of entrance of bacteria in wounds are correct, it follows that it is very important when a dressing is changed to wash and thoroughly disinfect the skin around the wound as far as the dressing extended, and beyond it, with an antiseptic lotion, care being of course taken, by covering up the wound, not to infect it while so doing. If this is done, then at each change of dressing the field of battle is transferred from the neighborhood of the wound to the margin of the dressing, and in accordance with the size of the dressing this battlefield will be at a greater or less distance from the wound.

We have now at our command a large number of antiseptics, which more or less answer the purposes required, and it is only by careful attention to the exclusion of these organisms that we can obtain the best results. That we can completely exclude these bacteria from wounds, both at the operation and afterward, has been ascertained by numerous experiments; and just in proportion as we are successful in so doing, we are to a like degree freed from the occurrence of suppuration and septic disease, and can to a like degree reckon with confidence on rapid and painless healing of wounds with the least disturbance to the patient.

TWO CASES OF MACEWEN'S OPERATION FOR THE RADICAL CURE OF HERNIA.

DR. G. H. MONKS reports (*Boston Med. and Surg. Journ.*, March 22, 1888) a case of a woman, sixty-three years of age, in whom a complete inguinal hernia of the left side became so large and troublesome, and was with so much difficulty retained by means of a truss that a radical operation was decided upon, and was done in the usual way. The sac was puckered up by a continuous suture of stout chromicized catgut, and fastened in the internal abdominal ring. The walls of the canal were then drawn together, so that the conjoined tendon and Poupart's ligament were closely approximated. It then became evident that it was impossible, on account of the size of the cavity left after the removal of the sac, to sew up the wound in the usual way, without leaving pockets. A large number of sutures of fine catgut were, therefore, buried in the wound, and the margins of the wound brought together with a continuous silk suture. No drainage was used. The superficial portions of the wound failed to unite, but healed slowly by granulation, and there had been no sign of the recurrence of the hernia up to the date of reporting, about three months later.

DR. ROYAL WHITMAN reports (*Ibid.*) a case of congenital inguinal hernia in a boy eleven years of age. The sac of the hernia was dissected out, divided above the testicle, separated from the cord, and returned to the abdominal cavity, the lower segment being sewn together to form a tunica vaginalis.

The sac was attached to the abdominal wall after the method of MacEwen. The patient recovered, and, eight months later, there had been no return of the hernia.

RESECTION OF THE ANKLE-JOINT.

DR. A. T. CABOT recently showed at the Boston Society for Medical Improvement eight cases of resection of the ankle-joint, for caries of the tarsal bones, probably tuberculous in character. In all the results were good. He believes that in regard to the operation the most important indication is the thorough removal of all diseased tissue, osseous, cartilaginous, and synovial. In his earlier cases he often tried to limit the operation to the parts evidently diseased, and scraped out the softened portions with a sharp spoon. In dealing with the small bones, however, the parts left almost certainly became affected with the disease, and had subsequently to be removed, so that, later, he had adopted the plan of removing the whole of any small bone which showed unmistakable caries. The only exception to this rule was made in cases of caries of the os calcis, in which the disease seemed to be wholly extra-articular. The metatarsals were treated by the removal of the diseased ends. As to the tibia and fibula, there are strong reasons for trying to save all the healthy bone possible: first, because interference with the epiphyseal cartilage affects the future growth of the limb, and may unnecessarily add to the shortening; and, second, because the malleoli, when they can be preserved, add greatly to the strength and steadiness of a new joint. The shortened foot falls in between them, and they give much lateral support. It is, therefore, better, when possible, thoroughly to scrape out the diseased tissue in these bones, and not, except in extreme cases, to saw off the ends evenly. After the removal of the bones the diseased synovial membrane should be carefully dissected out. In the after-treatment iodoform is especially valued, as it seems to have the power of checking any subsequent tubercular formation which might start from small portions of granulation tissue overlooked in the dissection. A seton of iodoform gauze is passed through the joint from side to side, and is kept in position until the wound is healed up; when it is finally withdrawn the sinus usually closes promptly. A posterior wire splint was used in all his cases. He employed the method by two lateral incisions.

INGUINAL PROPERITONEAL HERNIA.

DR. WILLIAM STONE TORREY reports (*Annals of Surgery*, March, 1888) the following interesting case: The patient, aged thirty years, and who had had a hernia for a long time, had nine days previously suddenly become unable to return it to the abdomen. Since that time he had had all the symptoms of acute intestinal obstruction. Physical examination revealed on the right side a small irreducible scrotal hernia, and in the abdominal wall on the same side a swelling as large as the hand just above Poupart's ligament, and midway between the crest of the ilium and the linea alba, tense and elastic on palpation, and resonant on percussion. The patient was etherized and herniotomy performed, revealing a congenital inguinal hernia. The intestine could readily be reduced, but with the invariable effect of increasing the size of the swelling in the abdominal wall. The incision was, therefore, extended

upward from the seat of this swelling, laying open the pouch situated between the transversalis fascia and the overlying muscles, which was found to contain a section of intestine from twelve to eighteen inches in length. The parietal peritoneum forming the sac was much thinned and firmly adherent to the walls of the cavity, and there were numerous adhesions between the gut and the sac itself. Reduction was difficult on account of the narrowing of the internal abdominal ring by the products of recent inflammatory action, and was finally effected by the division of the ring with the hernia knife.

The sac was then brought together by a continuous catgut suture, and the remaining parts closely approximated. The patient died of heart failure ninety hours after the operation. Dr. Torrey believes the condition to have been that of an incarcerated obstructed properitoneal hernia, for the following reasons: 1st. The existence of an abdominal tumor for a comparatively long time prior to the occurrence of symptoms indicating intestinal obstruction. 2d. The presence of organized adhesions between the coils of intestine and the inside of the properitoneal sac 'demonstrated that they were not of recent formation. 3d. The absence of constriction at any point other than that of the internal abdominal ring with the evidence of recent inflammatory action in that situation. 4th. The favorable mechanical conditions afforded for the production of a properitoneal hernia by the action of a truss on the person of the patient whose occupation—that of horseshoeing—was favorable to the development of such a hernia. 5th. The frequent employment of violent taxis.

THE ENDOSCOPE IN THE DIAGNOSIS OF VESICAL DISEASES.

SIR HENRY THOMPSON recently demonstrated (*Brit. Med. Journ.*, April, 1888) at University College Hospital the use of Leiter's endoscope in vesical troubles, and described the details of its employment. He thinks it will be most useful in the cases of those small bleeding tumors, the presence of which and the extent of whose development are often difficult to demonstrate satisfactorily. Such tumors usually produce repeated attacks of hæmaturia during a considerable period of time, and are, often for a long time, unaccompanied by pain or by frequency of passing water. They cannot be recognized by sounding as for stone, because the sound is not capable of appreciating so small and soft a mass. The appearance of a tiny shred of growth in the urine is, of course, diagnostic, but even then it cannot be accurately ascertained whether the growth is large or small, or whether we have one or several to deal with. Under these circumstances the endoscope may possibly be useful. So far as cancerous vesical growths are concerned—those tumors which can be felt through the rectum—little or no indication exists for the use of an endoscope. In cases of impacted calculus or of foreign body in the bladder the instrument may be very valuable. As applied to the urethra it is possible that in cases of localized congestion or of little papillomatous growths requiring the application of some caustic, the instrument may also be of use. In cases of stricture it is not likely there will be the least advantage in employing it. In conclusion, the lecturer stated that the use of the endoscope taxes the bladder and urethra more severely than the ordinary operation of sounding, and therefore should not be adopted without adequate necessity. It should not be regarded as an instrument in any case for diag-

nosis except when other ordinary resources have failed; and the simple means, hitherto relied on, of prosecuting diagnostic research in vesical troubles must be retained.

MR. E. HURRY FENWICK reported several cases of the use of the Nitze cystoscope, in which vesical growths, vesical calculi, and foreign bodies were discovered by its aid, and believes it will be of great use in bladder troubles when other forms of investigation have failed. He has but little doubt of its future importance in the differential diagnosis of the site of symptomless hæmaturia and pyuria, as the ureters can generally be discovered and examined as to the character of their efflux. He has seen in one case of renal hæmaturia a jet of bloody urine issue from the right ureteral orifice into the artificially clear contents in the bladder, just as a cuttle-fish would squirt out its fluid into the water around. The source of the hemorrhage was thus at once recognized. He thinks it will be of use in the estimation of the advisability of suprapubic removal of prostatic intravesical outgrowths (MacGills' operation). It may indicate the difference between growths which are removable, and those which it is the wisest policy to leave undisturbed. Lastly, it will be a means of deciding between the *boutonnaire* and the suprapubic operation for vesical growths; those which are single, lightly pedicled, and situated close to the urethral orifice may well be treated by the perineal incision; whilst those which are shown to be multiple, sessile, or springing from dimples in the mucous membrane necessitate the wider access afforded by the *sectio alta*.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

PROFESSOR OF DERMATOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

AND

HENRY W. STELWAGON, M.D.,

PHYSICIAN TO THE PHILADELPHIA DISPENSARY FOR SKIN DISEASES.

ON A FORM OF SO-CALLED SEBORRHŒA.

In the March (1888) number of the *Manchester Medical Chronicle*, BROOKE discusses the relationship existing between so-called seborrhœa corporis and the diseases variously described as seborrhœa capitis, lichen circumscriptus (Willan and Bateman), lichen annulatus seu circinatus seu serpiginosus (Erasmus Wilson), pityriasis rosea (Gibert), pityriasis maculata et circinata (Horand), lichen marginatus (Jamieson), and concludes that they are in reality the same disease. This same opinion, at least as regards the identity of one or more of these affections, has, as the writer states, been advanced by several of the above-named authors. These conditions have also been lately described by Unna under the name of eczema seborrhoicum. This name Brooke considers inappropriate, as it implies from association a pathological

connection with the sebaceous glands, whereas, as later investigations, especially those of Unna, indicate that the so-called seborrhœas are entirely independent of these structures; and, moreover, that the process is in nowise eczematous, although eczema may often be superadded as a complication. He suggests the adoption of the name of stearrhœa or steatorrhœa, each of the several varieties to be individualized by the use of a qualifying term. The cause of these various forms of "seborrhœa," the author thinks—in this and in many other respects following the teachings of Unna—is, in all probability, of a parasitic nature.

The paper concludes with the following: "As a prophylaxis against future outbreaks, Unna insists on the necessity of a prolonged and vigorous attention to the scalp. In almost every case in which seborrhœa occurs on the body, the scalp will be found to be affected with the disease. What the cause may be which excites it to spread after a quiescent stage, it may be of years, is still unknown; but the frequency with which fresh outbreaks spread from the scalp, shows that the existence there of the disease even in a slight form, is a constant source of danger. The head should, therefore, be frequently and thoroughly washed with soap and water, and one of the above ointments (weak mercurial, sulphur, and resorcin ointments referred to) persistently applied."

PEMPHIGUS ACUTUS SEU FEBRILIS.

Under the above title C. W. ALLEN contributes the notes (*Journal of Cutaneous and Genito-Urinary Diseases*, April, 1888) of a case of an acute bullous eruption. After a few days of itching, general malaise, and chill, blebs made their appearance, becoming more or less purulent, and a few hemorrhagic. New bullæ continued to appear from day to day for almost two weeks, at the end of which time recovery began to take place. The lesions varied in size from a pea to a hen's egg, and arose from apparently normal skin. There was slight fever, with more or less marked evening exacerbation. The whole process from beginning to end lasted about one month. The eruption was somewhat general, not extending, however, below the knees and elbows. The skin between the lesions was normal. At the time of the report, two months after the eruption had disappeared, there was no evidence of a recurrence.

PEMPHIGUS UNIVERSALIS.

A case of an acute and subsequently recurrent pemphigoid eruption is reported (*Edinburgh Medical Journal*, January, 1888) by A. C. MILLER. After a few days' malaise terminating in a chill, intensely itchy and stinging vesicular patches of erythema appeared, upon which bullæ soon developed. The eruption involved the entire surface excepting head, hands, and soles. Many bullæ were crescentic and gyrate in shape. The constitutional disturbance, which was at first well marked, abated, and the eruption began rapidly to subside, but crops of small blebs continued to break out upon the trunk and arms. At the end of a few weeks there was a recurrence, and so the disease behaved for some time. The case was further complicated by boil formation. In places small herpetic-looking vesicles were observed to

develop in groups. The author noted "the close relation that existed between three varieties of eruption, viz., erythema, pemphigus, and herpes." The patient improved under arsenic, and, according to the last report, was well excepting the appearance, now and then, of small blebs. The intense itching, which was throughout the chief annoyance, was best controlled by the application of a lotion of subacetate of lead. [The case corresponds in its manifestations to dermatitis herpetiformis.—EDS.]

THE SO-CALLED VERRUCA NECROGENICA AND ITS RELATION TO LUPUS AND TUBERCULOSIS.

FINGER (*Deutsche medicinische Wochenschrift*, February 2, 1888) shows from his own observations, supported by those of Verneuil, Verchère, Holst, Merklen, Raymond, and others, that the diseases hitherto known as tuberculosis of the skin, lupus, and verruca necrogenica, are essentially identical and due to the same primary cause. He thus confirms the views already expressed (1883) by Vidal and Besnier in regard to the tubercular nature of this last-named lesion. This same lesion may also follow inoculations with sputa, etc. The histological examination usually discloses the presence of the characteristic bacilli. It is, however, more superficial than ordinary lupus, having its seat exclusively in the cutis, while in the latter disease the subcutaneous tissues are also involved. This fact explains the relative curability of these two affections. The writer suggests that children are much more frequently exposed to accidental inoculations of decaying matter, etc., and that the skin being thin and more tender, is much more readily invaded in all parts, and as a consequence the ordinary type of lupus results, whereas, in adults, inoculations result in the superficial form of the disease, so-called verruca necrogenica.

THE MECHANICO-SURGICAL TREATMENT OF SKIN DISEASES.

The various plans of mechanical treatment of lupus and kindred diseases are briefly given (*Journal of Cutaneous and Genito-Urinary Diseases*, April, 1888) by MORROW, the methods of Besnier and Vidal receiving special commendation. That of the former, as is well known, is by means of punctate and linear galvano-cauterizations; while that of the latter consist in linear and punctate scarifications. These two methods, the author considers, both from personal observations of the results obtained by these distinguished dermatologists, and from his own experience during the past six months, the most important advance in the treatment of lupus for many years. The latter—linear and punctate scarifications—leaves a more superficial cicatrix, and there is less tendency to the formation of keloidal growths, and hence should usually be preferred when the disease is upon the exposed parts. A combination of the two methods is, however, often found desirable.

THE ETIOLOGY AND SYMPTOMATOLOGY OF ALOPECIA AREATA.

In a comprehensive paper (*Berliner klinische Wochenschrift*, No. 6, 1888) MAX JOSEPH gives a *résumé* of the present status of the trophoneurotic theory of the origin of alopecia areata. He directs attention to the fact that the

affection is seen usually between the ages of five and thirty, and in most instances appears during the periods of second dentition and puberty—in short, when active nervous energy is demanded elsewhere. Reference is made to his experiments with cats, showing circumscribed falling of the hair after excision of certain nerves, and which have been repeated recently by Mibelli with the same results. Several cases are briefly related in which the bald patches appeared shortly after profound nervous shock. The symmetrical distribution of the areas, as frequently observed, is also mentioned as bearing upon the neurotic origin of the disease. While the writer insists upon the importance of the trophoneurotic theory, he admits that as yet all cases of the disease cannot be said, with certainty, to be due to this cause.

XERODERMA PIGMENTOSUM AND ITS RELATION TO MALIGNANT NEW GROWTHS OF THE SKIN.

In an exhaustive paper on this rare disease (*Medical Record*, March 10, 1888) TAYLOR gives the full histories of the seven cases observed by him, and in a comprehensive tabulation includes thirty-three others, making a total of forty cases. This comprises almost all the cases accurately recorded. It would seem that the disease has, with one or two exceptions, its beginning in earliest childhood. Several members of the same family are usually attacked. Its manifestations consist chiefly in telangiectases, pigmentation, and atrophy, all of which have the closest pathological relations. To these lesions are superadded new growths, at first benign in character, but in most instances sooner or later becoming malignant. The disease is progressive, but variable; in rare instances after some years remaining stationary. The first lesions, according to the writer, are the red spots, and these subsequently become the seat of pigmentation. Atrophy soon occurs, and coincidently or after months or years, epithelial new growths make their appearance. In their most simple form these resemble the plaques often seen in the aged (keratosis senilis). Often, however, these are the starting-points of larger, sessile or pedunculated new growths, and usually of a malignant character. In the seventeen cases in which malignant new growths appeared, the following varieties were noted: epithelioma, fourteen times; melano-sarcoma, once; sarco-carcinoma, once; and "cancer" once. In the six instances of benign growths: papillary warts, two cases; papilloma, two cases; granuloma and pannus, each one case.

DOUBLE COMEDO.

OHMANN-DUMESNIL reviews at some length (*St. Louis Medical and Surgical Journal*, January, February, and March, 1888) his observations regarding double comedo, a condition to which he directed attention a year or more ago. It occurs somewhat frequently, an examination of a large number of males showing its presence in the proportion of three and a half per cent. Occasionally, also, may be noted cases in which three or four comedones communicate with one another—multiple comedones. The comedones are necessarily close together in the form of an irregular group, and are connected by slightly curved, horizontal canals, easily demonstrable by passing a slender wire from one to the other. This anomaly, in the author's experience, is found most

frequently over and below the malar prominences and on the upper part of the shoulders posteriorly. The condition—the intercommunicability of the several comedones—is apparently an acquired one, as the writer failed to find any evidence of such in infants or children, or in adults not affected with comedo. The most plausible explanation seems to be that in the deepest portions of the closely contiguous comedones, from pressure and consequent absorption of the intervening tissue, fusion takes place, resulting in one cavity with two or more external openings.

TUBERCULOSIS OF THE SKIN.

VALLAS (*Annales de Derm. et de Syph.*, tome viii. No. 12) regards the lesions of tuberculosis of the skin as variable, according to the virulence of the tubercle bacillus and the resistance of the tissues. Three forms are described; first, the “granular caseous;” second, the “follicular;” third, the nodular tuberculosis of Friedländer, with reticulated tissue, the latter resembling lupus vulgaris. Tuberculosis of the skin is a rare lesion, according to the author but 33 observation being on record. Of these, 13 were seated about the anal region; 11 upon the lips; 5 on the upper extremities; 2 on the face; 2 on the vulva; 1 on the penis; and 1 on the lower extremity. The disease is to be diagnosticated from the lupous ulcer, chancre, chaneroid, tertiary and syphilitic ulceration, and epithelioma. According to the author, the local treatment gives unsatisfactory results, the improvement of the general health being of most importance.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA.

THE TREATMENT OF PLACENTA PRÆVIA.

OBERMANN, in the *Archiv für Gynäkologie*, Band 32, Heft 1, publishes his results in the treatment of placenta prævia by Hofmeier's, or the Berlin method. Obermann's material for observation was sixty-four cases occurring in the Leipzig clinic during four years; of these the maternal mortality was 11 per cent., among the children 53 per cent. After a full consideration of his cases, he describes the method of treatment employed, briefly, as follows:

1. Hemorrhage in patients with placenta prævia calls for early operation; the best operation is version by combined external and internal manipulation, with deliberate extraction.
2. The operator should bring the breech to the os uteri and maintain it as

a tampon; massage of the body of the uterus during deliberate extraction is an important adjunct to the operation.

3. Hemorrhage from a lacerated cervix should be checked by immediate suture; tamponing with iodoform gauze is only advisable when hemorrhage occurs during early pregnancy; when the os is undilated the colpeurynter should be used.

4. Alcohol (brandy or sherry) should be early and freely given.

NORDMANN (*Ibid.*) regards the mortality among children in cases treated by early version and deliberate extraction as unreasonably great. He, therefore, in treating forty-five cases in Leopold's clinic, at Dresden, endeavored to adapt his treatment to the individual case, retaining many of the expectant modes of treatment commonly practised. His results were a maternal mortality of 13.3 per cent., and a mortality among children of 43.7 per cent. He concludes that an early, routine, operative treatment should not be employed, but thinks more expectant methods already in vogue should not be entirely abandoned.

[Both articles contain analyses of cases bearing upon the etiology and treatment of placenta prævia, worthy of study in the original.—ED.]

THE EFFECT OF ERGOT UPON INVOLUTION OF THE UTERUS.

BLANC, of Paris, in the *Annales de Gynécologie* for March, 1888, reports the results of a series of cases treated uniformly with ergot after delivery, as follows: Ergotin, when given during the first five or ten days after delivery, does not exercise a favorable effect upon involution. On the contrary, its action is to oppose the regular retraction of the uterus. With the exception of secondary, or post-partum, hemorrhage ergot is contra-indicated after delivery.

At a meeting of the London Obstetrical Society (*British Medical Journal* and *Lancet*) on February 1, 1888, HERMAN and FOWLER reported observations upon two selected groups of patients, which showed that ergot produced a diminution in the size of the uterus, but had no influence upon the lochia, in quantity or time of continuing. BOXALL reported observations upon two hundred patients which showed that ergot diminished the size of the uterus, the formation of clots, and severity of after-pains. DAKIN thought that the continuous use of ergot, by maintaining tonic contraction, tended to favor retention of clots and prevented normal involution.

THE ETIOLOGY OF PUERPERAL FEVER.

EISENBERG, in *Centralblatt für Bakteriologie*, Nos. 11 and 12, 1888, reviews the bacteriological literature of the subject, and sums up the present state of our knowledge as follows:

Puerperal fever is not a specific disease; but is that process recognized in surgical practice as phlegmon, pyæmia, or septiciæmia, and caused by both streptococcus and staphylococcus, and in some cases appearing as a diphtheritic process. It follows naturally that all the means which the study of bacteria has shown to be efficient should be employed to destroy sources of infection.

ALCOHOLISM IN OBSTETRICS.

MATTHEWS DUNCAN, in the *Edinburgh Medical Journal* for April, 1888, considers the free use of alcoholic drinks as a cause of sterility and abortion in the mother, and as producing idiocy, epilepsy, and defective development of the nervous system in the children of those drinking freely. In spite, however, of much evidence of the same tenor as Duncan's views, he does not find ground for accepting Darwin's statement that diseases following alcoholic indulgence are cumulative to the third generation, when they result in the extinction of the family. The evidence brought forward must be more thoroughly analyzed before so sweeping a conclusion regarding hereditary alcoholism can be accepted.

THE TREATMENT OF THE AFTER-BIRTH IN NORMAL LABORS.

CREDÉ, of Leipzig, in the *Archiv für Gynäkologie*, Band 32, Heft 1, writes in answer to a discussion upon his method of treating the third stage of labor, which occurred at the Wiesbaden Congress of last year, and in which varied criticisms and modifications were suggested.

He reminds his readers that when he first advocated the method which commonly bears his name there were but two procedures in vogue, that which consisted of removing the placenta with the hand, or an instrument introduced from without, and the expectant plan, which relied upon Nature entirely. He comments upon the misstatements of his method which have been made, and considers the term "external method" as its most appropriate designation.

The most decided criticism made against Credé's exposition of his method is that he does not define clearly enough the time at which the placenta is to be delivered. He considers that the choice of the time for employing his treatment depends upon one of the three indications for terminating labor, which are as follows; terminating a dangerous condition already established; the prevention of accident; saving of time. Regarding the first there can be no question, the patient must be rescued from her peril at once by bringing labor to a close. Regarding the second, Credé's experience has led him to believe that in the majority of normal labors, when the uterus contracts well, and responds to massage promptly, that three or four after-pains suffice to expel the placenta in from fifteen to thirty minutes after the birth of the child. He does not, however, advise that labor be ended invariably in this time; he recognizes the fact that many circumstances may render the exercise of a more expectant course of action necessary. The saving of time and suffering he thinks well worthy of serious consideration, from the interests of attendants and patient alike, especially since the method of treatment advised exposes the patient to no added danger.

He replies to the objection that greater loss of blood results from his treatment by stating that the loss of blood in a labor depends upon so many factors that it would be difficult to assert that any one is solely the cause; he is positive that the loss is not increased, but in his experience diminished by his delivery of the placenta.

He also thinks that the retention of chorion and decidua is not more

frequent among patients so treated; it occurs with about equal frequency with various methods of treating the third stage of labor. In four and one-fourth years he has treated 4969 patients in the Leipzig clinic without a case of retention, death, or serious complications which could be ascribed to this treatment. The cause of puerperal accidents he believes to be the meddling practice of the accoucheur; for fragments of placenta and membranes, when left to Nature and without infection conveyed by instruments, Credé believes to be innocuous. Auto-infection in such a case he considers impossible; the infecting material must come from without, and be absorbed by a recent wound, or an old wound recently freshened.

To the criticism that uterine massage, or "rubbing of the uterus," is unnecessary and dangerous, Credé replies that he does not advocate violence, but gentle, patient massage and stroking of the uterus, which when done by a practised hand cannot do harm. This method is not difficult to acquire, but is not a trivial procedure, or one to be performed without care and skill. A student should learn first to stroke gently the entire anterior surface of the uterus, then to straighten the uterus, and place it so that its direction (or axis) corresponds with that of the sacrum and coccyx, and, finally, he should add pressure exerted upon the uterus. The last is intermitted during uterine contractions. It is usual in patients so treated to find the placenta lying in the vagina after a short time.

A substitute proposed for this treatment is pressure by the abdominal muscles, which evidently is poor reliance in a condition where the tissues have been distended and weakened, and where the mother's strength is nearly spent by her labor. To the proposals to rub or massage the inferior segment only of the uterus, and also to push it upward above the supposed site of the placenta, Credé replies that the most efficient muscle of the uterus is in the superior and not in the inferior segment, and hence the part most powerful to contract should be stimulated: if the uterus be strongly pushed up immediately after delivery, a laceration of the cervix may be made larger; it is unnecessary strongly to raise the uterus, for stimulation of any portion of the uterine muscle will result in the contraction of the whole. He does not believe that the placenta is separated by the formation of a blood-clot between the placenta and the uterine wall, but believes that the uterus expels the placenta by its contractions, as it does the child.

Credé feels justified in concluding that the method which he originated is correct in principle, and in practice is without objection. He has no reason as yet to alter his method; the improvements suggested by others are already possessed by his treatment, or they are unimportant. He believes that no occasion has been shown for adopting any of the modifications proposed. [The value of Credé's mode of treatment is sufficient reason for abstracting his article to considerable length.—Ed.]

HYPNOTISM IN OBSTETRICS.

AUVARD and SECHEYRON, in the *Archives de Tocologie*, Nos. 1, 2, and 3, 1888, have tabulated and analyzed thirteen cases in which a parturient was hypnotized; they add three cases, one in which mock chloroform was given, and the patient was deluded into a species of hypnôtism; an unsuccessful

attempt to hypnotize a patient; and a case where bromide of ethyl was given.

The conclusions at which they arrive regarding the value of hypnotism as a practical expedient in obstetrics are as follows: Hypnotism may be produced during labor, but with more than usual difficulty; when produced it exhibits the three forms described by Charcot, catalepsy, lethargy, and somnambulism, the cataleptic condition having been least well developed.

The advantage of the hypnotic state during labor is its effect as an anæsthetic; the suppression of pain may be obtained by simple lethargy, or by somnambulism with or without suggestion.

Insensibility is by no means the constant result of hypnotism produced during labor; in direct contrast to those cases in which insensibility was produced are cases in which the patient was not made insensible, or but partial insensibility was the result. During uterine contractions the ordinary methods of producing hypnotism fail, especially during the period of the expulsion of the fœtus. Some women, when partially through their labors, may become sufficiently lethargized to render them forgetful of what happened in the first stage of labor; from this the complete success of hypnotism is not to be inferred. The hypnotic state does not favor the progress of labor, but rather results in a diminution of the vigor of the uterine contractions.

Hypnotism, as an anæsthetic, is uncertain and inefficient, and possesses grave objections from a medico-legal standpoint; as we possess much more efficient agents in chloroform and chloral, the employment of hypnotism in obstetrics should be only exceptional. Among easily impressionable women hypnotism may be induced during the dilatation of the cervix, but during the period of expulsion chloroform, as ordinarily used, is much better. Aside from true hypnotism, suggestion, the employment of pseudo-chloroform (a mere trace), and other similar expedients may be used in controlling impressionable women.

THE POWER OF RESISTANCE OF THE PARTURIENT UTERUS TO GERMS.

At a recent meeting of the French Academy of Sciences, STRAUS and SANCHEZ-TOLEDO reported experiments which they had made to determine the susceptibility of the uterus, shortly after parturition, to various germs.

They first, at intervals varying from three hours to three days after delivery, removed with sterilized platinum wire from the uteri of animals small portions of the uterine contents, with which they made cultures in various media. These cultures remained uniformly sterile, showing that normally the uterus contains no pathogenic bacteria after delivery.

They then curetted the uterine cavity of animals killed immediately after delivery; the matter thus obtained yielded no microbes when stained and microscopically examined. Sections of the uterus, made soon after parturition, revealed no microorganisms. They conclude, therefore, that the uterus after normal birth contains no pathogenic microorganisms.

It was then determined to test the normal, recently emptied uterus, regarding its susceptibility to pathogenic microbes. Accordingly, cultures of the bacillus of anthrax, the bacillus of septicæmia, the staphylococcus aureus, and the microbe of chicken cholera, were injected into the cavity of the uteri

of living animals; control experiments being made by injecting the same bacilli hypodermatically into other animals. Intrauterine injection of microbes in healthy, recently delivered animals was without result, with the exception of the bacillus of chicken cholera, which proved rapidly fatal to the small animals experimented upon.

The experimenters conclude that ordinarily the parturient uterus contains no pathogenic microbes, nor is it susceptible to the presence, in its cavity, of most of the infectious germs. The idiosyncrasy exhibited to the microbe of chicken cholera is inexplicable; but shows that each species of animal possesses especial susceptibility to a particular germ or species.—*L'Union Médicale*, April 21, 1888.

[The contrast between the fatal effects of the hypodermatic injection of microbes and their presence in the uterine cavity, illustrates the readiness with which the organism is affected when the circulation is directly entered, and the power of resistance to infection possessed by the glandular tissues. For similar investigations upon the germs present in the human subject, the reader is referred to studies by Döderlein, of Leipzig (*AMERICAN JOURNAL OF MEDICAL SCIENCES*, March, 1888, p. 315).—ED.]

THE RELATIONSHIP BETWEEN ALBUMINURIA AND DISEASES OF THE PLACENTA.

WIEDOW, in the *Zeitschrift für Geburtshülfe*, Band xiv. Heft 2, reviews the literature of the subject, and adds five cases which he had observed.

He concludes from minute study of the placenta that the lesion present is a coagulation-necrosis of the epithelia of the villi or interstitial placentitis. Regarding the question, as to which is cause and which effect, Wiedow has no satisfactory answer. In the majority of cases, only the changes in the kidneys ordinarily occurring during pregnancy are found, and, on the other hand, normal placenta are often present in the case of women who suffer from nephritis. In twin pregnancies, when albuminuria exists, one placenta may be healthy, and the other diseased. Syphilis often produces placental lesions, but all signs of this disease were wanting in the cases reported.

Wiedow is led to conclude that the relationship between albuminuria and disease of the placenta is one of coincidence, and not of cause and effect.

THE TREATMENT OF OCCIPITO-POSTERIOR POSITIONS.

The *Boston Medical and Surgical Journal* of April 19, 1888, gives a discussion on this subject, at the Massachusetts Medical Society, opened by GREEN, of Boston, whose views are briefly, as follows: When the head, in occipito-posterior position, rests above or at the superior strait attempt anterior rotation by postural treatment and manipulation through the abdominal wall; and failing in that, perform version.

When the head has entered the pelvis, in occipito-posterior position, and flexion is gradually lost and rotation fails, an effort should be made to produce flexion by the hand in the uterus or vagina. If this is unsuccessful straight forceps are the best instrument with which to produce rotation; if they cannot be procured the reversed application of the curved forceps, as

proposed by Richardson, of Boston, may be practised, but with the greatest caution. Delivery in occipito-posterior position, without rotation, should be avoided if possible because of danger to the perineum.

REYNOLDS emphasized the importance of early diagnosis by external examination, and also the measuring of the pelvis to determine the presence of contraction. When a large head had entered the pelvis in occipito-posterior position Reynolds thought instrumental interference should be practised with the greatest possible caution.

DOE urged the possibility of rotating the head, early in labor, by putting the patient in the knee-chest position, and manipulating the head *per vaginam*.

REYNOLDS (J. P.) stated that he thought the use of the vectis was commonly misunderstood and misstated; the vectis was intended to be used from the front of the pelvis upon the parietal bone or mastoid process, pressure being made from above downward, while the other hand of the operator protects the mother's soft parts from the handle.

In closing, GREEN urged the importance of early diagnosis, and of etherization whenever needed. When the occiput cannot be rotated he thought it best to favor complete extension, and allow birth to occur by face presentation. Regarding the patient's posture in applying forceps, he has placed his patients upon the back.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
OF NEW YORK.

ATTACHMENT OF THE RETROFLEXED UTERUS TO THE ANTERIOR ABDOMINAL WALL.

LEOPOLD, in a paper read before the Gynecological Society of Dresden (*Centralblatt für Gynäkologie*, March 17, 1888), considers the results of hysteror-rhaphy in three cases after the lapse of a year. The operation was performed in each instance for the relief of a condition that had existed for years, resisting every method of treatment. Pain was entirely and permanently relieved, and the uterus remained anteverted, though movable. The following are brief histories of the cases:

CASE I.—The patient had suffered for five years with persistent pains over the sacrum and lower part of the abdomen, caused by retroflexion and perimetritis. She could not wear a pessary (although the uterus was movable) on account of a tendency to frequent attacks of pelvic inflammation. The abdomen was opened, the uterus drawn upward and secured by three silk sutures, the first being introduced through the entire thickness of the abdominal wall to the left of the wound, then through the bases of each round ligament in succession, and finally through the right edge of the wound; the second suture passed through the serous covering, including some

of the muscle of the uterus, a little in front of the origin of the tubes, while the third was similar to it, but was introduced through the fundus behind the tubes. In order to secure a firm union between the fundus and the parietal peritoneum, the serous covering of the former was dissected off between the points of entrance and exit of the stitches. The appendages were not removed. The patient's convalescence was uninterrupted, and at the end of fifteen months the uterus remained firmly attached to the anterior abdominal wall, but freely movable; there was no vesical irritation, menstruation was normal, and all the former troubles had disappeared.

CASE II.—The uterus was large, retroflexed, and attached by firm bands to the rectum; the right ovary was enlarged and prolapsed, the left tube and ovary being bound down. The latter were removed, the right tube and ovary being spared. The uterus was freed, drawn upward and sutured as before; no drainage tube was used. Eleven months later the uterus remained in position, and the patient was able to perform her usual duties. The sacral pain, of which she complained before the operation, still persisted, although it was not so severe as formerly.

CASE III.—The patient had long suffered from menorrhagia associated with severe pains in the back and abdomen. The uterus was enlarged and retroflexed, but not adherent; both ovaries and tubes were enlarged, fixed, and sensitive. Defecation was painful. No benefit having been afforded by the usual palliative treatment, laparotomy was performed, when it was found that the intestine was adherent to the entire posterior surface of the uterus, while the appendages were thoroughly diseased. The latter having been removed, the fundus uteri was attached to the abdominal wall by a single suture and a drainage-tube was left in Douglas's pouch. No bad symptoms followed, the patient being discharged on the seventeenth day. Six months later the uterus was small, in a position of antero-lateral flexion, but freely movable; there were no evidences of parametritis. Menstruation had ceased and all painful symptoms had disappeared. Ten months after the operation the patient was in excellent condition, and the uterus remained as before.

Commenting on these cases, the writer insists on the necessity of waiting until the expiration of at least a year before assuming that the operation has been entirely successful. As regards the method of suturing the uterus in order to secure mobility of the organ, he points out that after Cæsarean section the abdominal and uterine wounds usually remain permanently adherent without giving rise to subsequent disturbances. He leaves the sutures until the twelfth or fourteenth day. Vesical irritation was not noted in any instance, nor was it necessary to support the uterus by means of a pessary.

THE RADICAL CURE OF RETROFLEXION BY A NEW METHOD.

SCHÜCKING (*Centralblatt für Gynäkologie*, March 24, 1888) calls attention to the important fact that, in attaching the non-pregnant uterus to the anterior abdominal wall after performing laparotomy, the anatomical relations of the organ become somewhat unnatural, while every method of fixing the uterus by a suture passed through the vaginal vault is open to the dangers of puncturing a coil of intestine, and tearing out of the superficial suture with resulting internal hemorrhage. He accordingly suggests the feasibility of

passing a suture from the interior of the uterus outward and downward through the anterior fornix, with the object of causing an adhesion between the anterior surface of the organ and the vesico-uterine pouch of peritoneum, thus producing permanent ante flexion.

The writer operated in two cases according to the following method: The retroverted but movable uterus was anteverted on a sound, the patient being in the lithotomy posture. A specially constructed guarded aneurism-needle (similar in principle to Bellocq's canula), threaded at its point with a stout silk ligature, was introduced into the uterine cavity on the left index-finger, while with the right finger the anterior vaginal fornix was pushed forcibly upward and backward, so as to bring it in apposition with the fundus uteri. The bladder (previously emptied) was thus pressed forward out of the way, and the safety of any coil of intestine which might have occupied the vesico-uterine pouch, was assured. The needle was then protruded from its canula, and as soon as it had penetrated the anterior uterine wall, as determined by the diminished resistance, the canula was pushed forward over the point, and the handle of the instrument was carried backward until its point was felt by the finger in the anterior fornix, when the needle was again pushed forward through the vesico-uterine fold and fornix, and the loop of silk was seized with a tenaculum and one end was drawn through into the vagina. The instrument was then withdrawn, leaving the other end of the silk protruding from the os; these were tied tightly, an iodoform tampon was introduced, and special precautions were taken to guard against peritonitis. The suture was removed on the sixth day, support being furnished by vaginal tampons until the ninth day, when these too were discontinued.

Two weeks after the operation in the first case the uterus was found to be retro-displaced as before, probably because the suture was removed too soon. In the second case reported the patient was allowed to walk about after ten days, the suture not being removed until the end of the second week. The uterus was found to be sharply ante flexed, and had not changed its position since the operation; the symptoms due to the displacement had entirely vanished.

The writer concludes that the recurrence of the displacement in consequence of the new formation of retro-uterine adhesions is less likely to occur when the uterus is fixed in a position of exaggerated ante flexion, as by his method.

PALPATION OF THE UTERUS AND OVARIES AFTER DILATATION OF THE RECTUM.

ULLMANN (*Ibid.*) demonstrated before the Vienna Obstetrical Society the value of dilatation of the rectum by means of a colpeurynter, preparatory to bimanual examination. When the latter is filled with water the uterus and its appendages are elevated and approximated to the anterior abdominal wall.

Experiments on the cadaver showed that when the bladder was emptied, and the colpeurynter was distended with six or eight ounces of water, the uterus ascended in an arc extending upward and forward; the left ovary at the same time was raised higher than the right, and the uterus was situated

obliquely in such a way that the end of the right tube was somewhat higher than that of the left. When the bladder was filled the uterus was turned on its long axis so that its left border approached nearer to the abdominal wall than the right, the left ovary being carried upward and forward.

In the living subject with the rectum similarly distended, the uterus is strongly anteфлекed and approximated to the abdominal wall, so that the entire organ with its appendages and the broad ligaments can be accurately mapped out by bimanual examination. When the bladder is full, the right ovary is elevated so that it becomes inaccessible to the examining finger.

INTESTINAL OBSTRUCTION AFTER OVARIOTOMY.

NIEBERDING (*Ibid.*) reports the following case: a woman, æt. twenty-nine, was operated upon for cysto-sarcoma of the ovary; the tumor was somewhat adherent, but was removed without special difficulty. Before closing the abdominal wound it was noted that the omentum was so short that it could not be spread over the intestines. On the third day urgent symptoms of intestinal obstruction developed, and the wound was reopened. A coil of intestine was found to be adherent to the left border of the line of the incision, so that the lumen was obstructed at this point; the gut was detached, but general peritonitis had already developed and the patient succumbed soon after.

Commenting on this case, the writer thinks that the avoidance of a similar accident may be assured by discarding too strong solutions of bichloride of mercury, which cause irritation of the peritoneum. In this case there was no clinical or pathological evidence of septic peritonitis. Since there is great danger in leaving the intestines uncovered by omentum, if the latter is too short for this purpose, the peritoneal wound should be closed separately so that there may remain no raw edge to which a loop of intestine might adhere. As soon as there is a strong suspicion that such an adhesion exists a secondary operation ought to be performed without delay.

THE CURE OF PROLAPSUS UTERI BY EXERCISE OF THE PELVIC MUSCLES AND METHODICAL ELEVATION OF THE UTERUS.

PREUSCHEN (*Centralblatt für Gynäkologie*, March 31, 1888) has made a careful study of the method of pelvic massage practised by Brandt, of Stockholm. The movements are of three kinds—elevation of the uterus, opposed movements of the hip-joint, and percussion of the lumbar and sacral regions. The patient is placed on a couch in the lithotomy position; the operator stands at her left side, facing her, and presses the palms of his hands deeply between the symphysis and the fundus uteri, while at the same time an assistant keeps the uterus anteфлекed by his finger introduced into the vagina. The operator grasps the uterus and draws it upward, then allows it to sink back into its place; at the same time the finger of the assistant follows the organ upward, and by pressing upon the anterior fornix, prevents it from becoming retroverted. This manœuvre is repeated thrice at each *séance*.

The patient being in the same position, adducts the thigh, bringing the knees and heels in close contact; the operator, sitting beside her, abducts the

limb, while the patient opposes him as strongly as possible. When abduction is complete, he seeks to adduct, the patient opposing as before. The percussion movements consist in light taps given with the edge of the open palm.

The successful case reported by the writer was that of a woman with complete procidentia of thirty-one years' standing. Pessaries had been tried in vain, and the patient would not consent to an operation. From the first day on which the above described method of treatment was adopted the uterus remained within the vagina, although the woman in coming to the clinic was obliged to walk a long distance, and ascend two flights of stairs. After three and a half months the uterus remained in its normal position, and the cure was apparently permanent.

The writer's observations led him to the following conclusions: The opposed movements of the hip are the most important factors in promoting a cure. Elevation of the uterus tends simply to correct the retro-displacement which is always present in cases of prolapsus, and not to fix the organ in its normal plane in the pelvis. During opposed adduction there is an undoubted contraction of the muscles forming the pelvic diaphragm. This may be readily demonstrated in the case of the levator ani, especially when the patient's hips are elevated. When this muscle contracts strongly, not only is the vaginal opening in the diaphragm narrowed from behind forward, but the distance between the portio vaginalis and this opening is increased. Through the action of the levator ani the vagina is separated into an upper horizontal and a lower oblique portion; the former sustains the cervix, so that the more horizontal and elongated it becomes, the firmer is the support furnished to the cervix. In other words, the contraction of the levator not only narrows the vagina, but prevents the uterus from sinking downward. If the uterus becomes retroverted, the abdominal pressure will tend to force the cervix forward until it reaches the oblique descending portion of the vagina, when any considerable increase of the *vis a tergo* will cause the uterus to become procident. When, on the other hand, the organ is anteverted, the abdominal pressure will simply crowd the cervix downward more firmly upon the barrier formed by the contracted levator; hence the importance of keeping the uterus anteverted while practising the opposed movements. The latter tend directly to restore the tone of the relaxed levator in cases of long-standing procidentia.

THE DIAGNOSIS AND TREATMENT OF PERITONEAL ADHESIONS OF THE DISPLACED UTERUS.

TER-GRIGORIANZ (*Ibid.*) recommends the following method as being more convenient than Schultze's, since it can be practised in the office, without administering an anæsthetic. The anterior lip of the cervix is seized with a volsella, and is drawn downward and forward, being held in position by an assistant. The examiner can then map out the entire posterior surface of the uterus as high as the fundus, can detect any adhesion, and can tear it if it is not too strong. The uterus may then be lifted on the finger, while the external hand is inserted behind the fundus, so as to draw it forward. If the organ cannot be replaced in this manner, the *portio vaginalis* is drawn backward and downward, and is held in this position, while the operator pushes

the fundus upward with his left index finger, assisted by manipulation through the abdominal wall. It is sometimes possible to hook the tip of the forefinger over the eicatricial bands, and to draw them downward and forward so as to stretch or tear them. If this fails, the cervix is again pulled down, and the index finger is pressed against the right border of the uterus, while the external hand pushes the fundus over to the left as far as possible, reversing the manœuvre if necessary.

The following is a brief report of the cases successfully treated by the writer :

Case I. The patient, æt. twenty-three, suffered from dysmenorrhœa, vesical irritation, and dyspareunia. The uterus was retroverted; a broad band could be felt, extending from the upper part of the posterior aspect of the organ to the sacrum. After preliminary treatment with "absorbifacients," attempts were made twice weekly to replace the organ, with ultimate success, the symptoms above-mentioned disappearing entirely.

Case II. A woman, æt. thirty, who had had two children by her first husband, married again, and remained sterile after four years. Her uterus was retroverted and attached by thick bands to the left sacro-iliac synchondrosis. After preparatory treatment, the adhesions were torn in two attempts, and the uterus was restored to its normal position. The patient eventually became pregnant.

Case III. The patient, twenty-four years of age, had suffered with pains in the rectum and abdomen of six years' standing. The uterus was adherent in a position of left retro-lateral flexion. It was restored to its normal position after two applications of the treatment above described. The patient was entirely relieved, and became pregnant.

Case IV. The patient, æt. twenty-three, was married at twenty-one, and had borne one child; she had septic trouble after confinement, and on convalescing developed pains in the back and abdomen, menorrhagia, and hysterical attacks before the menstrual periods, which recurred at irregular intervals. The uterus was enlarged, retroflexed, and adherent to the right border of the pelvic brim. After repeated efforts, the adhesions were separated, and the organ was brought to the median line. Some hemorrhage followed the operation, but this ceased spontaneously. In the course of two weeks the uterus was in its normal position, so that a Hodge pessary could be inserted. In two weeks more the symptoms disappeared, and the pessary was eventually removed. The patient remained under observation for a year and there was no recurrence.

In several instances adhesions were broken up at the writer's office, without preparatory treatment. Ordinarily two attempts were made weekly, but if much pain resulted, only one a week. If the bands are very thick one must be content with simply stretching them a little each time, instead of endeavoring at once to tear them. If the entire posterior surface of the uterus is adherent, or the organ is buried in a mass of adhesions, he does not try to detach it.

LACERATION OF THE CERVIX AND ITS TREATMENT.

SÄNGER (*Schmidt's Jahrbücher*, Bd. cexv. page 206) details the results of his observations, which are interesting as presenting a fair view of the subject

from the standpoint of an enlightened German specialist. Among 1500 gynecological patients he noted 13.4 per cent. with laceration of the cervix, one-third of the number being primiparæ. He states quite positively that no cervical tear heals by first intention. Ectropion is frequently observed, due in the writer's opinion to the presence of both subinvolution and cervical endometritis.

The results of laceration are disease of the endometrium, chronic metritis, and parametritis; the latter was noted in 40 per cent. of his cases, and was usually unilateral and confined to the left side, sometimes giving rise to right latero-flexion. Säger never observed oöphoritis as a consequence of a cervical lesion, as described by some writers. Sterility was only "relative."

The chief symptoms noted were leucorrhœa, menorrhagia, and "pains in the parametrium;" hystero-neuroses were also present. Emmet's operation is the only proper treatment of this condition; if there is indurated tissue in the angle of the tear and in the adjacent parametrium, preparatory treatment with iodine, massage, and hot vaginal injections is advisable. He operated upon twenty-two patients; in nineteen the wound healed perfectly and in every instance the bad symptoms disappeared.

SUPRA-VAGINAL AMPUTATION OF THE UTERUS.

KRASSOWSKY (*Centralblatt für Gynäkologie*, March 24, 1888) reports nineteen cases, with a mortality of forty-four per cent. In twelve cases the stump was treated extra-peritoneally, with a resulting mortality of fifty per cent., while by the intra-peritoneal method it was only thirty per cent. In seventeen cases the operation was complicated by the presence of numerous adhesions. It was in each instance performed under carbolic spray; for cleansing the hands, instruments, and ligatures a solution was employed consisting of one per cent. of biniodide of mercury and three-fourths of one per cent. of iodide of potassium. The closed wound was painted with a mixture containing four parts of biniodide of mercury and eight parts of collodion in alcohol (ninety-five per cent.).

The writer queries whether it is not always better when, in the course of an oöphorectomy, a fibroid uterus is discovered to be content with removal of the ovaries, whether both are diseased or not. He is undecided as to the advisability of completing an ovariectomy by removal of the uterus with the cyst, when the two are firmly adherent.

Note to Contributors.—All communications intended for insertion in the Original Department of this Journal are only received with the distinct understanding that they are sent to this Journal alone. Gentlemen favoring us with their communications are considered to be bound in honor to a strict observance of this understanding.

Liberal compensation is made for articles used. Extra copies, in pamphlet form, will, if desired, be furnished to authors in lieu of compensation, *provided the request for them be written on the manuscript.*

INDEX.

- A**BORTION, pathology and treatment of, 207
- Abcess, chronic mammary, diagnosis of, 87
- Abcess, retro-sternal, 195
- Acetanilid, 73, 74, 284
- Acetonuria in children, 409
- Acid, free hydrochloric, in gastric secretion, 408
- Acid, hydrofluoric, inhalation of vapor of, 615
- Acromegalie, 512
- Adhesions, peritoneal, diagnosis and separation of, 106
- After-birth, treatment of, in normal labors, 642
- Albuminuria, cyclic, 626
- Albuminuria, diet in, 189, 626
- Albuminuria, relationship between, and disease of the placenta, 645
- Albuminuria of the healthy, 292
- Alcoholism in obstetrics, 642
- Alcoholism, treatment of, 180
- Alopecia areata, etiology and symptomatology of, 638
- Amaurosis, uræmic, 211
- Amblyopia, tobacco, 395
- Amputations, suggestions as to technique of, 527
- Amylenhydrate, 180, 395, 510, 616
- Anæmia, Biemer's pernicious, treatment of, 182
- Aneurism, thoracic, sweating in, 251
- Aneurism, treatment of, 285
- Ankle-joint, resection of, 634
- Anthraxobin, 510
- Anthrax, foetal infection with, 320
- Antipyrin, 283, 394
- Antipyrin poisoning, 394
- Aortic regurgitation, 236
- Astragalus, fracture and dislocation of, 89
- Ataxia, Friedreich's, 514
- Atresia vaginæ, treatment of, 429
- Atrophy, spinal progressive muscular, 399
- Auricle, contused wound of, 90
- Axis, luxation and fracture of, 302
- B**AND, vocal, recurrent hemorrhage of, 94
- Basiotripsy, 100
- Bergeon's method, 179
- Blood, subcutaneous injection of, 83
- Bone, temporal, determination of important topographical relations in, from form of skull, 531
- Bozeman, kolpo-uretero-cystotomy, 255, 368
- Bramwell, alcoholic paralysis, 575
- Bramwell, aortic regurgitation, 236
- Breast, carcinoma of, 219, 341
- Bremer, malignant œdema and fat embolism, 594
- Bronchitis, dyspnœa of, 122
- C**ÆSAREAN section, 103, 150, 321, 439, 537
- Caillé, prolapse of ureter, 481
- Calculus, vesical, treatment of, 415
- Camcron, influence of leukaemia upon pregnancy and labor, 28
- Cancer and cancerous diseases, 191
- Cancer, treatment of, 192
- Capsule, anterior, extraction of, 201
- Carcinoma, laryngectomy in, 422
- Carcinoma, ultimate results of extirpation of larynx for, 205
- Cardiocentesis, 289
- Cataract operation, 202
- Cellulitis, pelvic, 215
- Cervix, amputation of, for epithelioma, 438
- Cervix, diagnosis of commencing epithelioma of, 107
- Cervix, relation of laceration of, to uterine disease, 324
- Cervix, treatment of laceration of, 651
- Chest, gunshot wounds of, 294
- Chlorides, the; in urine, in gastric disease, 292
- Cholera infantum, 181
- Chorea, chronic progressive, 617
- Chorea, hereditary, 398
- Chorea, treatment of, 74, 283
- Chorion, treatment of retention of, 210
- Cocaine in skin diseases, 96
- Colotomy, inguinal, 88
- Comedo, double, 639
- Cord, umbilical, short, 430
- Cord, umbilical, tumor of, 318
- Craniotomy, comparison between induced labor, Cæsarcan section, and, 535
- Creasote, 288
- Crocolin, 427

Croup, intubation of larynx in, 193
 Cyst, cerebral, 521
 Cysts, tubo-ovarian, 436

DACTYLITIS, syphilitic, 198

Degenerations, cardiac, Bright's disease and, 588
 Delirium tremens, treatment of, 397, 509
 Dermatitis exfoliativa neonatorum, 1
 Dermatitis herpetiformis, 135
 De Schweinitz, ciliary neuralgia, 244
 Diabetes, amenorrhœa in, 547
 Diabetes, connection between obesity and, 293
 Diabetes, lipogenic, 625
 Diabetes mellitus, albuminuria in, 407
 Diabetes, treatment of, 409
 Diarrhœa, infantile, treatment of, 181
 Diarrhœa of children, treatment of, 395
 Diphtheria, removal of tube in children tracheotomized for, 202
 Diphtheria, treatment of, 73, 396, 532
 Disease, Bright's, cardiac degenerations and, 588
 Disease, middle ear, relation of adenoid growths in nasopharynx to production of, 530
 Disease, Thomsen's, atypical case of, 621
 Disease, Weil's, 511
 Diseases, ear, report of 500 cases of, 528
 Diseases, ear, clinical groups of, 528
 Diseases, febrile, gastric secretion in, 624
 Diseases, renal, milk regimen in, 180
 Diseases, septic, suppuration and, 631
 Diseases, skin, mechanico-surgical treatment of, 638
 Diseases, vesical, diagnosis of, 635
 Dressings, sterilized, 519
 Dubring, dermatitis herpetiformis, 135
 Dura mater spinalis, adeno-sarcoma of, 266
 Dysmenorrhœa, treatment of, 397

EAR, diphtheria of, 302

Ear, effect of high atmospheric pressure on, 530
 Ear, middle, impeded nasal respiration and catarrh of, 303
 Ear, middle, polypi in, 531
 Ear, treatment of acute diseases of, 529
 Eczema and psoriasis, 312
 Eczema, seborrhœal, 311
 Eczema, treatment of, 96
 Edwards, membranous enteritis, 329
 Elephantiasis in children, 310
 Elliot, dermatitis exfoliativa neonatorum, 1

Embolism, fat, malignant œdema and, 594
 Endocarditis, infectious, etiology of, 623
 Endarteritis deformans, 290
 Endometritis, fungous, 213
 Enteritis, membranous, 329
 Epispadias, 436
 Epistaxis, treatment of, 535
 Epithelioma caused by long retention of a pessary, 544
 Ergotin injections, 432, 545
 Ether, death during inhalation of, 83

FAT crystals, nature of, in feces, 190

Ferment, diastasic, in urine, 294
 Fever, heat, 554
 Fever, typhoid, tracheo-bronchic adenopathy in, 534
 Fever, typhoid, treatment of, 507, 508
 Fever, puerperal, etiology of, 641
 Fistula, vesico-vaginal, 215
 Flexions, uterine, treatment of, 105
 Formulæ, 617
 Fraser, dyspnœa of bronchitis, 122
 Fuller, excision of tonsils, 357

GALL-BLADDER, surgery of the, 295.

Garrigues, improved Cæsarean operation, 439
 Gastrotomy, 85, 93
 Gland, external iliac, consecutive affections of, 417
 Gland, Skene's urethral, histology and pathology of, 437
 Gleditschine, 71
 Goitre, extirpation of, 534
 Goitre, surgical treatment of, 194
 Gonococcus, the, 192
 Gonorrhœa, latent and chronic, in the female, 438
 Gonorrhœa, relation of, to generation, 216
 Gout, guanine, in the hog, 109
 Griffith, tuberculosis pulmonum, 34
 Gross, carcinoma of breast, 219, 341
 Guaiacal, 179

HÆMATURIA, rhabdites in urine in, 518

Hæmoptysis, treatment of, 181
 Hæmostatics, intra-uterine douches of hot antiseptic fluids as, 316
 Harris, self-inflicted Cæsarean operation, 150
 Hearing, rapid loss of, 91
 Heart, failure of, in valvular disease, 404
 Hemiplegia, puerperal, 102
 Hemorrhage, carotid, treatment of, 417

Hemorrhage, intra-uterine, during pregnancy, 537
 Hemorrhage, post-partum, treatment of, 317
 Hernia, radical cure of, 298, 413, 523, 633
 Hernia, inguinal properitoneal, 634
 Hodenpyl, adeno-sarcoma of dura mater spinalis, 266
 Hydradenoma, eruptiform, 313
 Hydrocele in the female, 218
 Hydrocele neonatorum, 526
 Hydrophobia, treatment of, 284
 Hymen, nature of, 544
 Hymen, rare anomaly of, 437
 Hypnotic, a new, 74
 Hypopyon and dental caries, 200
 Hysterectomy, supra-vaginal, 217
 Hysterectomy, vaginal, high amputation versus, 544
 Hysteria, treatment of, 548
 Hysterorrhaphy, 468
 Hypnotism in obstetrics, 643

ICE, antipyretic effects of, applied to the cardiac region, 283

Incision, extra-peritoneal explorative, 328
 Infants, sterilization of milk and foods for, 486
 Ingals, rheumatic laryngitis, 22
 Injections, intra-uterine, accidents caused by, 539
 Iodoform, anti-bacterial action of, 15
 Iodoform mixture, 398

JAW, upper, malignant tumor of, 420
 Jeffries, anti-bacterial action of iodoform, 15

Jeffries, sterilization of milk and foods for infants, 486
 Joints, inflamed, antiseptic injection of, 418
 Joints, loose bodies in, 419

KELLY, hysterorrhaphy, 468
 Kidney, cystic tumor of, 297
 Kidney, floating, treatment of, 523
 Kidneys, surgery of the, 196
 Kolpo-uretero-cystotomy, 255, 368

LABOR, induction of, 313
 Labor, mitral stenosis and third stage of, 430
 Labyrinth, syphilitic disease of, 91
 Lanolin, absorption of, 617
 Laparo-clytrotomy, 208
 Laparotomies, stitches in, 412
 Laryngectomy, 205, 533
 Laryngitis, rheumatic, 22

Larynx, blennorrhœa of, 532
 Larynx, carcinoma of, 95, 306, 307
 Larynx, leprosy of, 94
 Larynx, morbid growths of, 206
 Larynx, removal of foreign bodies from, 95
 Larynx, stenosis of, 423, 424
 Lepra and syphilis, 309
 Leprosy, therapy of, 98
 Leucoplakia buccalis, 93
 Leukæmia cutis, 309
 Leukæmia, influence of, upon pregnancy and labor, 28
 Ligaments, pelvic, puerperal relaxation of, 103
 Liver, physiological variations in shape and position of, 518
 Liver, removal of portions of, 523
 Lochia, infectious character of, 315
 Lung, gangrenous abscess of, 196
 Lung, sarcoma of, 404
 Lupus, treatment of, 312

MAC-DONNELL, sweating in thoracic aneurism, 251

Macroglossia, congenital, treatment of, 424
 Measles, epidemic of, 398
 Meigs, cardiac degenerations and Bright's disease, 588
 Melanoderma, treatment of, 310
 Mendelson, guanine gout in the hog, 109
 Mercury, elimination of, 72
 Methylal, 398
 Metrorrhagia, treatment of, 547
 Microorganisms in hepatic disease, 413
 Microorganisms in urea of acute Bright's disease, 409
 Microorganisms of male urethra and of normal urine, 409
 Mucosa, uterine, relations between, and disease of the adnexa, 108
 Murmurs, obstructive mitral, 186
 Myotomy, elastic ligature in, 432
 Myotonia congenita, 621

NAPHTHOL, 286
 Nares, posterior, occlusion of, 94
 Nephrectomy, 298
 Neuralgia, ciliary, 244
 Neurasthenia, treatment of, 548
 Neuritis, puerperal, 102
 Nystagmus, rare case of, 200

OEDEMA, hereditary angio-neurotic, 362
 Edema, malignant, fat embolism and, 594
 Œsophagoscope, a new, 307

Œsophagotomy, 521
 Œsophagus, digestion of impacted meat in, 308.
 Œsophagus, resection of, 410
 Œsophagus, stricture of, 93, 425
 Ophthalmia neonatorum, 319
 Osler, hereditary angio-neurotic œdema, 362
 Ossicles, excision of, 303
 Otitis media, chronic suppurative, 420
 Otitis media acuta, Zaufal's pneumococci in, 529
 Otorrhœa, treatment of, 421
 Ovaries, anatomy of healthy and diseased, 322
 Ovaries, palpation of, 648
 Ovariectomy during pregnancy, 541
 Ovariectomy, intestinal obstruction after, 649
 Ovary, undescribed form of degeneration of, 545
 Oxyanaphthoic acid, 509

PACKARD, heat fever, 554

Pancreas, surgical treatment of diseases of, 412

Papilloma, laryngeal, transformation of, into carcinoma, 203

Paralysis, acute ascending, 515

Paralysis, alcoholic, 567, 575

Parturition, post-mortem, 308

Pelvic inflammation, treatment of, 546

Pelvis, kyphotic, 430

Pemphigus acutus seu febrilis, 637

Pemphigus universalis, 637

Pepper, tuberculosis pulmonum, 34

Perimetritis, treatment of, 107

Perineum, development of, 435

Perineum, ruptured, treatment of, 543

Peritonitis, ante-partum, 317

Peritonitis, laparotomy in, 87

Peritoneum, cleaning the, 105

Peritoneum, pseudo-myxoma of, 324

Pharynx, resection of, 410

Pheul, 395

Phlyctenosis aggregata, 97

Phthisis, treatment of, 179, 288, 508, 509

Phthisis, treatment of muscular atrophy of, 616

Pityriasis rosea, primitive patch of, 312

Placenta prævia, treatment of, 640

Plaster, compound salicylated, 96

Pleural exudate, an indigo-forming, 287

Pleuritis pulsans, 78

Pneumonia, fibrous emphysema after, 621

Pneumonia, cerebral symptoms in the, of children, 622

Pneumothorax, 183, 185

Poisoning, antipyrin, 394

Poisoning, corrosive sublimate, 213, 427

Polymyositis acuta progressiva, 78

Polypi, post-nasal, 93

Positions, occipito-posterior, 208, 645

Pott's fracture, 376

Pregnancy, extra-uterine, 102, 104, 209

Presentation, face, evolution of, into vertex presentation, 428

Presentation, primitive face, 100

Prolapsus uteri, cure of, 649

Psoriasis, treatment of, 97, 397

Pterygium, removal of, 202

Pulse, diastolic of, in insufficiency of aortic valves, 517

Pyelitis, chronic, 255, 368

QUININE, hypodermatic injection of, 507

RECTUM, resection of, 300

Retina, detachment of, treatment of, 200

Retinitis Brightii, 201

Retroflexion, operative treatment of, 327, 433, 434, 647

Reviews—

American Gynecological Society,
 Transactions of, 607

American Ophthalmological Society,
 Transactions of, 499

American Surgical Association, Trans-
 actions of, 606

Ball, The Rectum and Anus, 273

Bar, Antiseptic Methods in Obstetric
 Practice, 177

Butlin, Operative Surgery of Malignant
 Disease, 379

Browne, Diseases of the Throat, 386

Byford, Diseases of Women, 382

Chapman, Human Physiology, 167

Cozzolini, Treatise on Diphtheria, 170

Creighton, Illustrations of Unconscious
 Memory in Disease, 172

Cripps, Passage of Air and Feces from
 the Urethra, 610

Cutler, Diseases of the Skin, 281

Davis, Administration of Anæsthetics,
 70

Doran, Gynecological Operations, 169

Druitt, Surgeon's Vade Mecum, 65

Ebstein, Nature and Treatment of Gout,
 53

Fothergill, Practitioner's Handbook of
 Treatment, 55

Reviews—

- François-Franck, Motor Functions of Brain, 269
 Garmany, Operative Surgery on the Cadaver, 388
 Garrigou-Desarènnès, Chronic Catarrh of the Nares, 609
 Gerster, Rules of Aseptic and Antiseptic Surgery, 495
 Goodell, Lessons in Gynecology, 389
 Gouguenheim, Physiology of the Voice and of Singing, 173
 Gowers, Disease of Nervous System, 603
 Gray, Anatomy, 174
 Gross, Impotence, 69
 Harrison, Surgical Diseases of the Urinary Organs, 177
 Hartridge, Refraction of the Eye, 392
 Heitzmann, Anatomy, 505
 Holland, The Urine, 503
 Homans, Three Hundred and Eighty-four Laparotomies, 613
 Hutchinson, Syphilis, 58
 Index-Catalogue of Library of the Surgeon-General's Office, 64
 Kirchner, Aural Therapeutics, 506
 Jackson, Diseases of Hair and Scalp, 68
 Jennings, Practical Urine-Testing, 503
 Jones, H. McN., Diseases of the Ear and Nasopharynx, 279
 Jones, T., Diseases of the Bones, 501
 Legraine, Insanity in the Weak-minded, 66
 Lermoyez, Physiology of the Voice and of Singing, 173
 Lomb Prize Essays, 62
 Müller, Clinical Diagnosis, 282
 Nettleship, Diseases of the Eye, 67
 Philipovich, Percutometry and Palpatometry, 391
 Randall, Anatomy of Human Ear, 57
 Robinson, Diagnosis and Treatment of Eczema, 276
 Sanné, Diphtheria, 60
 Seifert, Clinical Diagnosis, 282
 Schmiedeberg, Elements of Pharmacology, 69
 Schreiber, Massage and Methodical Muscle Exercise, 612
 Thin, Pathology and Treatment of Ringworm, 275
 Van Nüys, Chemical Analysis of Healthy and Diseased Urine, 503

Reviews—

- Winckel, Diseases of Women, 277
 Wood, Nervous Diseases, 51
 Yount, Treatment of Hemorrhoids, 614
 Rheumatism, treatment of, 286, 510
 Rhinitis, atrophic, treatment of, 94
 Rickets, relation of syphilis to, 192
 Rötheln during the puerperium, 310
- SACCHARIN**, 409
 Saliva, mutual relation between, and gastric juice, 291
 Salpingitis, pathological anatomy of, 435
 Salt in dermal hygiene and therapeutics, 95
 Scapula, extirpation of, 527
 Scarletina in pregnancy, 541
 Sciatica, treatment of, 509
 Sclerosis, amyotrophic lateral, 399
 Seborrhœa, form of so-called, 636
 Sepsis, puerperal, treatment of, 318
 Shakespeare, ciliary neuralgia, 244
 Skin, tuberculosis of, 640
 Sleeplessness, treatment of, 516
 Smallpox, treatment of, 615
 Soziodol, 310
 Sounds, auscultatory, pathological significance of the, in the crural arteries, 623
 Sparteine, 72
 Spleen, aortic insufficiency and pulsation of, 407
 Spleen, pulsating, 293
 Spleen, treatment of malarial enlargement of, 80
 Starr, syringomyelia, 456
 Stenocarpine, 71
 Stenosis, nasal, and pulmonary dilatation, 535
 Stomach, diagnosis of carcinoma of, 188
 Stomach, diagnosis of disease of, 75
 Stomach, healing of wounds of, 411
 Stomatitis aphthosa, 517
 Stomatitis, treatment of, 73
 Strabismus operations, 199
 Stomach, round ulcer of, 624
 Suckling, alcoholic paralysis, 567
 Sulphuretted hydrogen, evolution of, in urine, 80
 Surgery, hepatic, 549
 Surgery, cerebral, 627
 Sutton, Pott's fracture, 376
 Synovitis, fungous, of tibia-tarsal joint, 199
 Syphilis, lepra and, 309
 Syphilis, treatment of, 71, 181, 285, 393
 Syringomyelia, 456, 620

TAYLOR, tubercle of testis, 43
 Temperature, puerperal, normal course of, 538
 Testis, tubercle of, 43
 Tetanus uteri, 211
 Tendon reflex, significance and value of, 618
 Tibia, congenital deformity of, 145
 Tibia, resection of, 198
 Tiffany, hepatic surgery, 549
 Tin, toxic effects of, 616
 Tongue, treatment of ulceration of, 616
 Tonsils, excision of, 357
 Trachea, carcinoma of, 304
 Trachea, syphilis of, 308
 Trachea, tumor of, 534
 Tracheotomy, dangers of chloroform in, 423
 Tracheotomy, soft drainage tubes in, 422
 Tribromphenol, 511
 Tube, Fallopian, tuberculosis of, 216
 Tubes, Fallopian, frequency of pathological conditions of, 217
 Tuberculosis, inheritance and curability of, 402
 Tuberculosis, pulmonary, Italian treatment of, 394
 Tuberculosis pulmonum, 34
 Tumor, intracranial, removal of, 85
 Tumor, recurrent nasopharyngeal, 94
 Tumor, removal of, of twenty-five years standing, 308
 Tumors, mammary, treatment of, 526
 Tumors, vesical, treatment of, 300
 Tumors, erectile, cure of, by electrolysis, 617
 Turning and extraction, separation of, in point of time, 99
 Tympanum, suppuration of, in chronic Bright's disease, 91

ULCER, gastric, etiology of, 77
 Ulcer, gastric, influence of trauma in production of, 77
 Uremia, treatment of, 180
 Ureter, prolapse of, 481
 Urethra, treatment of rupture of, 524
 Urinary tract, anesthesia of, 89
 Uterus, atony of, treatment of, 99

Uterus, contraction of, tonic, 104
 Uterus, displaced, diagnosis and treatment of peritoneal adhesions of the, 650
 Uterus, double, retention of menses in, 437
 Uterus, effect of ergot upon involution of, 641
 Uterus, epithelioma of, treatment of, 214
 Uterus, functional affections of, from morphine habit, 107
 Uterus, gravid, irreducible retroflexion of, 212
 Uterus, palpation of, 648
 Uterus, paralysis of, 323
 Uterus, parturient, power of resistance of, to germs, 644
 Uterus, retroflexion of, treatment of, 325, 646
 Uterus, rupture of, 320
 Uterus, supra-vaginal amputation of, 652

VAGINA, rupture of, 315
 Varices, treatment of, 418
 Ventricle, left, wound of, 521
 Verruca neogenica, relation of, to lepra and tuberculosis, 638
 Vertigo, aural, 92
 Viscera, abdominal, treatment of wounds of, 522
 Vomiting, hyperacid, condition of urine in, 79
 Vulva, hæmatoma of, 543

WHOOPING-COUGH, treatment of, 73
 Wounds, dressing for, 81
 Wounds, puerperal, infection of, 101
 Wounds, treatment of, 81
 Wrist-joint, resection of, 198

XERODERMA pigmentosum, relation of, to malignant new growths of the skin, 639

YOUNG, congenital deformity of tibia, 145

